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Annual Report on Forest Management 2009/10

Annual Report on Forest Management

For the year April 1, 2009
to March 31, 2010

Minister of Natural Resources
of the Province of Ontario

To his Honour
The Lieutenant-Governor of the
Province of Ontario

May it please your Honour

The undersigned begs respectfully to present to your Honour the Annual Report on Forest Management for the fiscal year beginning April 1, 2009 and ending March 31, 2010.

Michael Gravelle

Minister

November, 2011

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Overview

Ontario's Crown forests are managed in a sustainable manner to ensure long-term forest health while providing environmental, economic, and social benefits to Ontarians. The annual report on forest management addresses legal requirements outlined in the Crown Forest Sustainability Act and the Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown lands in Ontario.

The Annual Report on Forest Management 2009/10 provides information to help in understanding how Ontario's Crown forests are being managed. The report summarizes forest management activities for the period April 1, 2009 to March 31, 2010. The following is a summary of key forest management activities for 2009/10:

Natural Disturbance

- Weather disturbances caused tree mortality in approximately 20,097 hectares of forests, while fire affected approximately 545 hectares. Insects and disease caused tree mortality in approximately 4 million hectares;

Forest Harvesting

- 10.6 million cubic metres of wood were harvested from nearly 99,464 hectares. Forestry operations and the subsequent manufacturing of forest products generated substantial economic benefits for the provincial economy of Ontario. The investment (including capital and repair expenditures) in Ontario's forest industry was $662 million;

Forest Renewal

- Over 93,000 hectares of harvest area were regenerated by artificial means (tree planting and/or seeding). 104,000 hectares of harvest area was regenerated naturally. Approximately 52,000 hectares were site prepared and 64,000 hectares were tended. 140,500 hectares were assessed for their regeneration status. Of the total area assessed, 93.5% was declared as having met an acceptable silvicultural standard. $63.8 million was expended from the renewal trusts and $50.9 million was accrued to the renewal trusts;

Forest Access Roads

- 3,226 kilometres of primary, branch and operational roads were constructed (majority being operational). Over 24,000 kilometres of roads were maintained, with the majority of the road maintenance activities occurring on primary roads. 769 kilometres of roads had access controls established and 562 kilometres were decommissioned;

Compliance Monitoring

- Over 3,600 inspections of forest operations were conducted by both the forest industry and MNR. The compliance rate was 95%;

Independent Forest Audits

- Seven independent forest audits were conducted. Six of the seven audit reports concluded that, during the term of the audit, the forests were being managed in general compliance with legislation and policy requirements, licence requirements, and in accordance with the principles of sustainable forest management. On the Whiskey Jack Forest, the auditors identified a 'critical exception' to sustainable management related to the forest's silviculture program which required more tending to ensure the establishment of conifer plantations.

Forest Certification

- The Dryden forest was certified to the Sustainable Forestry Initiative Inc. (SFI) standard for the first time. All previously certified forest management units continued efforts to demonstrate ongoing conformance to their selected certification systems during the fiscal year. The Big Pic, Whiskey Jack and White River Forests allowed their certification to lapse.

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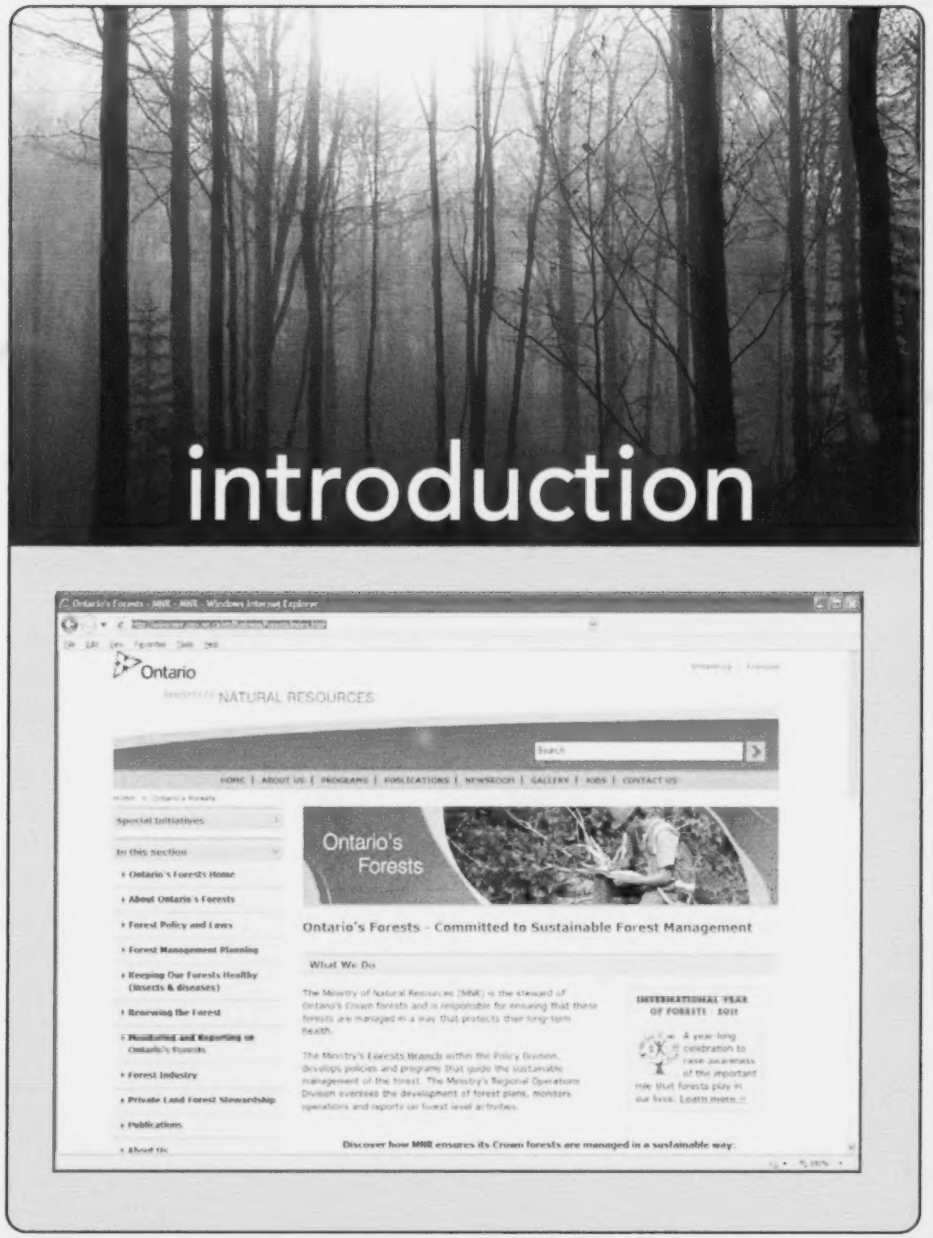
Annual Report on Forest Management: An Overview

The annual report on forest management addresses legal requirements outlined in the Crown Forest Sustainability Act (CFSA) and the Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown lands in Ontario.

This is the fifteenth annual report on forest management, and covers the period April 1, 2009 to March 31, 2010. This report contains, in part, a summary and analysis of 46 management unit annual reports submitted to the MNR in November 2010. Unless otherwise stated, information portrayed in tables and figures in this provincial annual report are sourced from the management unit annual reports.

The data are subject to ongoing improvement and the reader is advised that changes in data may occur as improvements are made to the dataset. New or updated data and information submitted since the previous annual report on forest management are included in this report. Errors or omissions noted since the publication of previous annual reports are also corrected or updated in this report. Minor rounding errors may occur due to the precision of the numbers being displayed.

This annual report provides information to help in understanding how Ontario's Crown forests are being managed, as well as baseline information to compare with future forest management activities and annual reports. Crown forest resources within the Area of Undertaking (AOU) and their associated programs are the main focus for this annual report. MNR programs that deal with private land or provincial parks are not reported in this document. More information about MNR programs is available at: http://www.ontario.ca/forests.



Key Facts

This section reports on the size and land types found within Ontario, with a special focus on the types of forest.

Summary of Land Classes in Ontario 2009/10

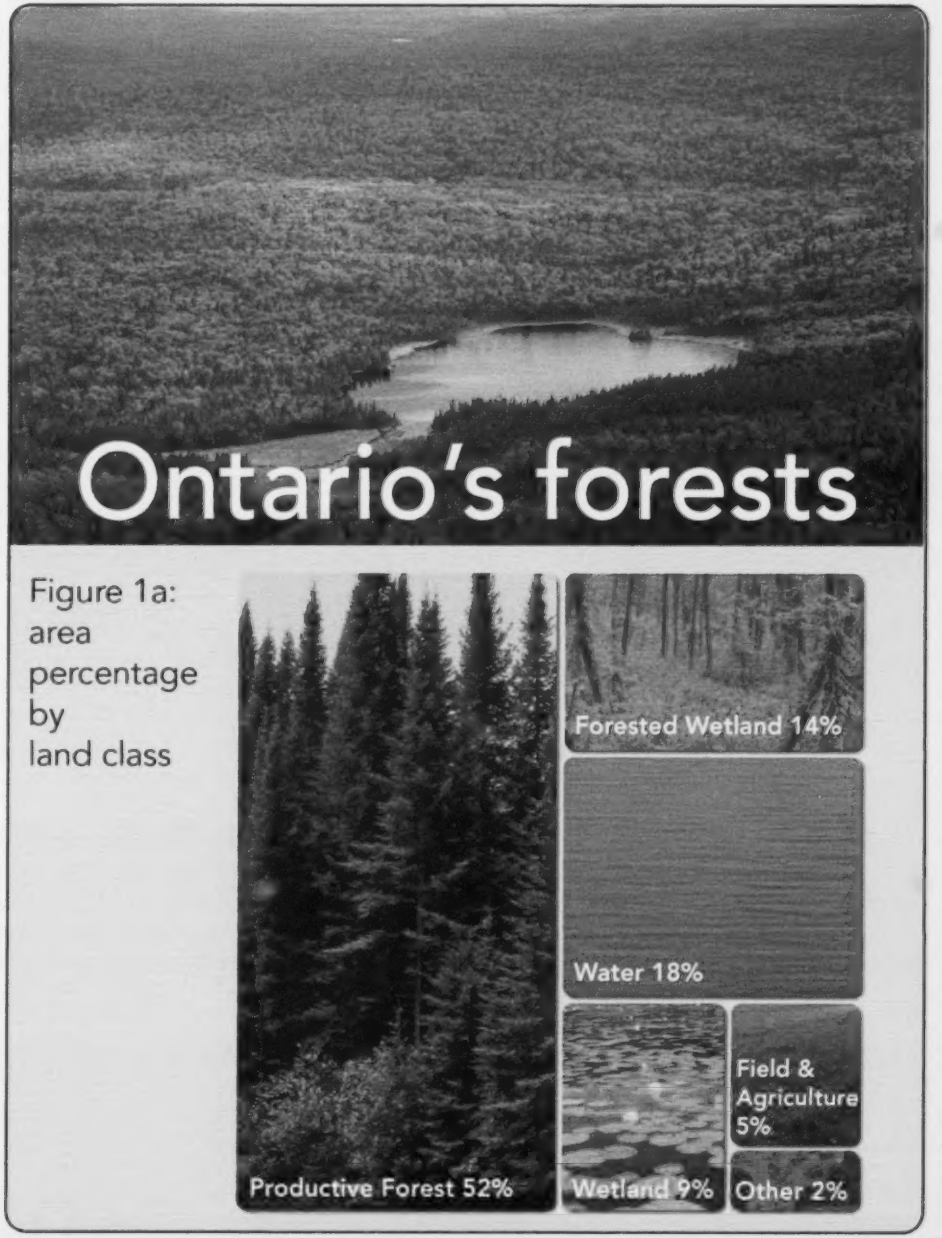
- Ontario is 107.6 million hectares in size;
- 86.6% of Ontario is publicly owned (93.2 million ha);
- 66% of the province is forest (71.1 million ha);
- 52% is productive forest (56.0 million ha); and
- 9.1% is within existing or proposed Parks and Protected areas (9.7 million ha) of which 6.4 million hectares is forest.

Land Classes are summarized in Table 1a and Figure 1a. Further detail can be found in the Forest Resources of Ontario 2011.

Table 1a - Total Provincial Area by Land Class

	Total Provincial Area (hectares)			
Land Class	Crown	Parks and Protected Areas	Other	Total
Water	17,028,847	1,819,446	594,998	19,443,291
Wetland	8,170,336	1,082,148	245,512	9,497,997
Field/Agriculture	32,564	6,901	5,362,145	5,401,611
Other Non-forest	816,335	414,077	995,339	2,225,750
Forest	57,427,164	6,419,161	7,221,444	71,067,769
Total:	83,475,246	9,741,734	14,419,438	107,636,418

Source: Landcover 2008 satellite imagery



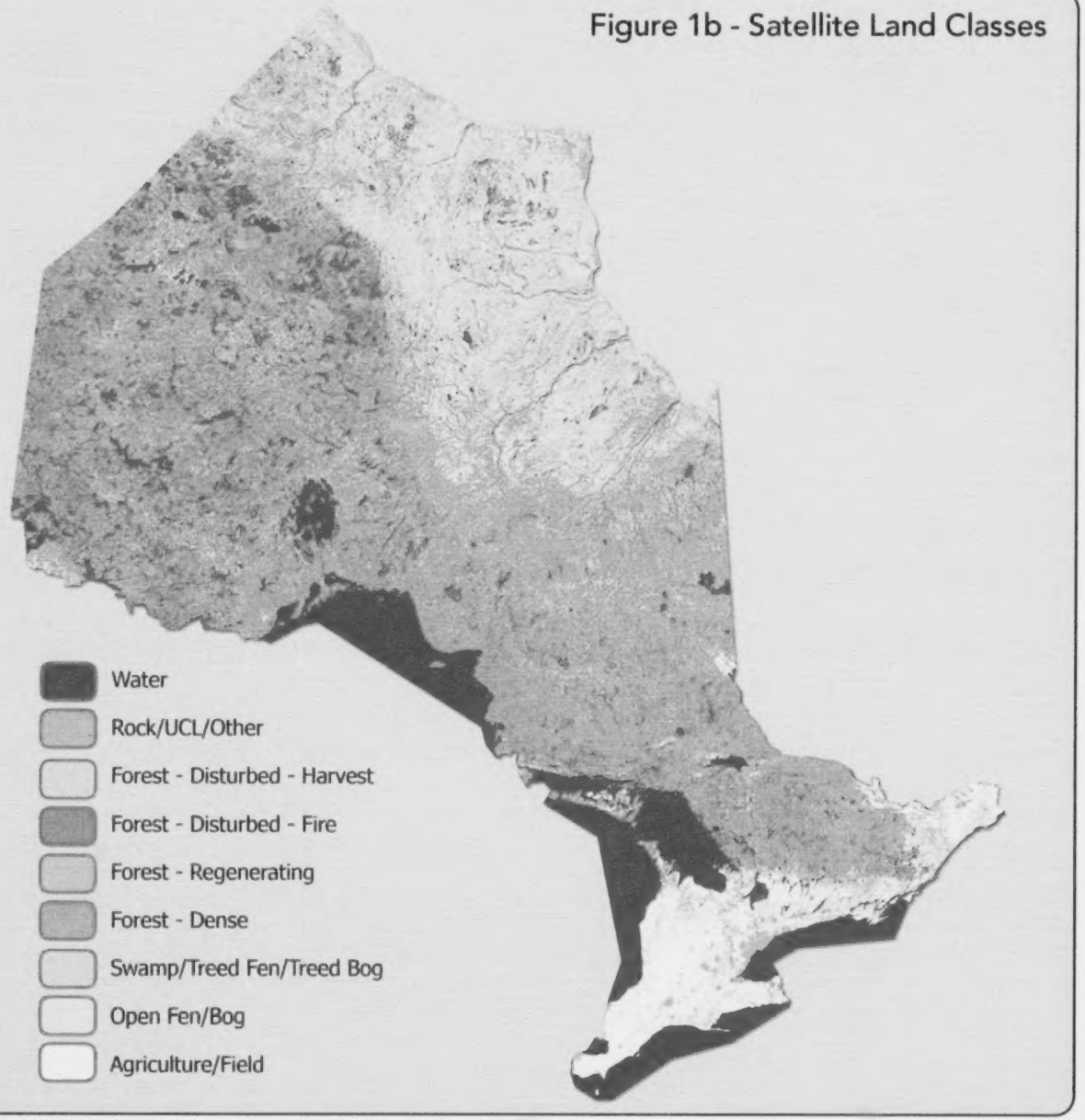
Background

Throughout this document, Crown land refers to land vested in Her Majesty in right of Ontario and, in general, managed by the MNR. Statistics found in this section are from provincial inventories compiled in Forest Resources of Ontario 2011, which can be consulted for more information.

Ontario is approximately 107.6 million hectares in size; 88.3 million hectares of this area is land and 19.3 million hectares is water. Non-productive and productive forests comprise over 66% of the province. This is a significantly higher proportion than the remainder of Canada, where forests represent only 42% of the country's total area. Figure 1b illustrates the broad land classes in Ontario.

Three major land ownership categories are described in this section: Crown, parks, and private or other owners (Table 1a,b,c). Seventy-eight percent of the province's area is Crown or publicly-owned land and water (Figure 1c). Provincial and national parks cover an additional nine percent, and privately or federally-owned land and water encompasses the remaining 13%.

Figure 1b - Satellite Land Classes



The Area of the Undertaking (AOU), or zone where forest management occurs, is 43.8 million hectares in size. The forest area managed for harvest in Ontario, known as productive forest, is 27.2 million hectares (Table 1c).

For forest management purposes, the province is partitioned geographically, depending on the context. Some administrative units referenced in this report include management units, districts and regions.

Most forest operations on Crown land occur in the AOU (Figure 1c). A further breakdown of land classes within the province and AOU are detailed in Table 1b and 1c, as well as Figures 1d, 1e, 1f and 1g.

Figure 1c - Ownerships

Data

Table 1b - Total Provincial Area by Land Class, 2011[1]

Land Class	Total Provincial Area (hectares) Crown	Parks and Protected Areas	Other	Total
Non-forested Land and Water				
Water (Great Lakes)	8,544,737	150,917	-	8,695,654
Water	8,484,110	1,668,529	594,998	10,747,637
Wetland	8,170,336	1,082,148	245,512	9,497,997
Rock	357,098	131,427	146,701	635,225
Field/Agriculture	32,564	6,901	5,362,145	5,401,611
UCL	50,099	3,893	815,160	869,152
Other	409,138	278,757	33,478	721,373
Subtotal:	26,048,082	3,322,573	7,197,994	36,568,649
Non-productive Forest				
Treed Wetland	12,744,149	1,142,442	1,086,587	14,973,177
Productive Forest				
Dense Deciduous	3,116,344	541,011	1,695,077	5,352,433
Dense Conifer	13,388,952	1,587,482	1,018,988	15,995,422
Mixed Forest	11,719,114	1,579,184	2,242,483	15,540,781
Sparse Forest	11,043,761	1,200,602	1,133,904	13,378,267
Regenerating Forest	2,307,411	188,708	20,457	2,516,575
Disturbance - Fire	1,268,389	173,083	11,998	1,453,470
Disturbance - Harvest	1,839,044	6,649	11,949	1,857,643
Productive Forest:	44,683,015	5,276,719	6,134,858	56,094,592
All Forest:	57,427,164	6,419,161	7,221,444	71,067,769
Grand Total:	83,475,246	9,741,734	14,419,438	107,636,418

[1] *The information reported is updated on a 5 year cycle, and will differ slightly from inventory summaries due to source*

Figure 1d - Total Provincial Area % by Land Class

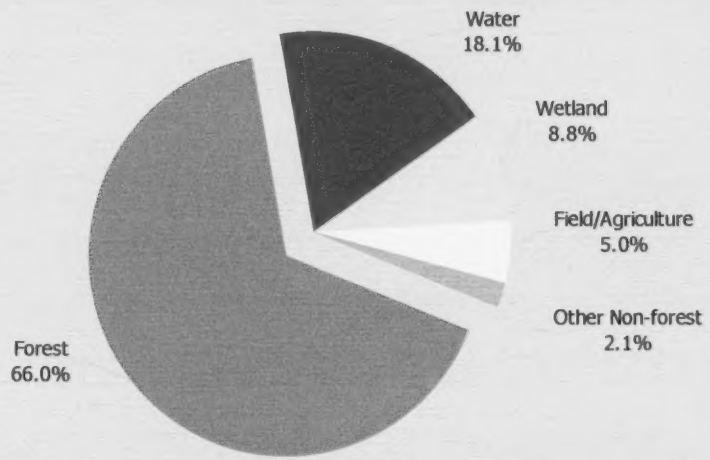


Figure 1e - Total Provincial Forest Area % by Class

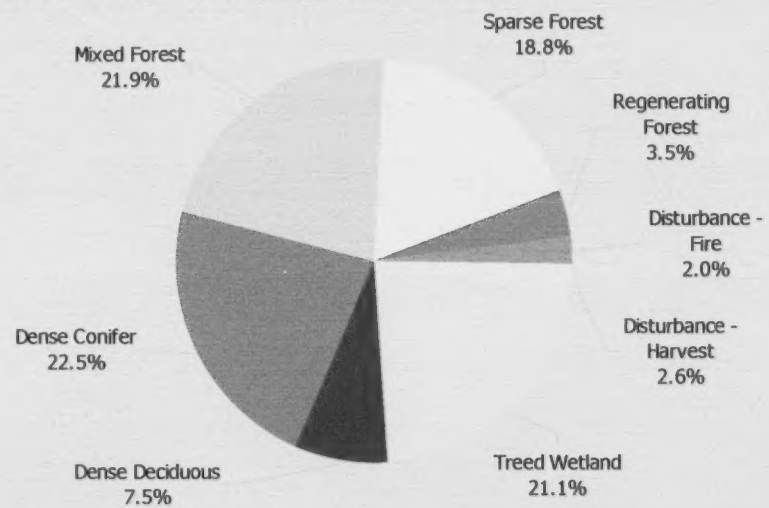


Table 1c - Total AOU[2] Area Land Class, 2011

Land Class	Total Provincial Area (hectares) Crown	Parks and Protected Areas	Other	Total
Non-forested Land and Water				
Water	4,550,586	882,338	276,775	5,709,699
Wetland	284,810	63,001	98,389	446,200
Rock	118,127	57,895	102,826	278,848
Field/Agriculture	13,728	649	581,423	595,800
UCL	38,553	2,228	158,173	198,954
Other	115,668	13,687	29,503	158,858
Subtotal:	5,121,471	1,019,799	1,247,088	7,388,358
Non-productive Forest				
Treed Wetland	1,350,304	168,821	182,965	1,702,090
Productive Forest				
Dense Deciduous	2,838,949	291,235	1,125,349	4,255,532
Dense Conifer	7,427,663	972,884	664,485	9,065,031
Mixed Forest	9,615,450	1,012,613	1,811,293	12,439,356
Sparse Forest	4,338,470	581,912	958,025	5,878,407
Regenerating Forest	867,094	62,855	3,106	933,055
Disturbance - Fire	239,860	41,559	6,442	287,861
Disturbance - Harvest	1,838,982	5,937	11,929	1,856,848
Productive Forest:	27,166,467	2,968,993	4,580,629	34,716,090
All Forest:	28,516,771	3,137,814	4,763,594	36,418,180
Grand Total:	33,638,242	4,157,613	6,010,683	43,806,538

[2] *AOU or Forest Management Zone - see figure 1c*

Figure 1f - AOU Area % by Land Class

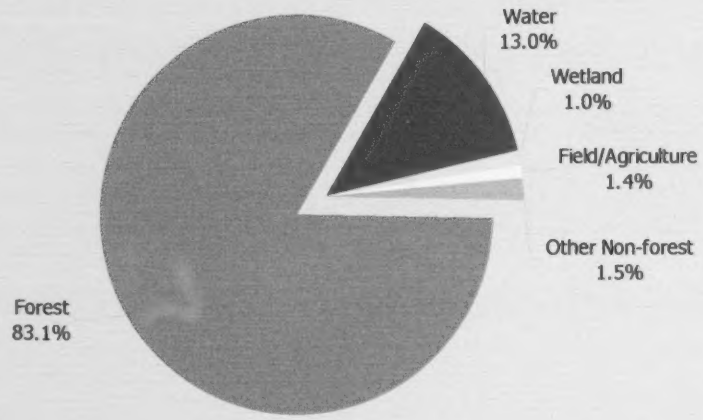
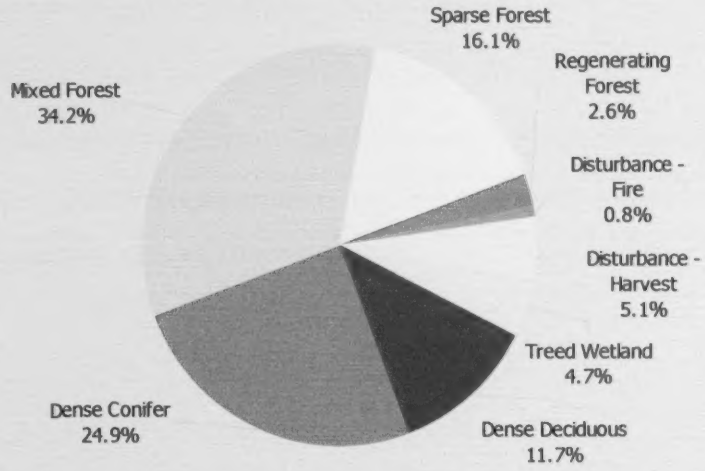


Figure 1g - AOU Forest Area % by Forest Class



Key Facts

This section reports on natural disturbances in Ontario, including fire, insect damage, forest disease and weather events.

Summary of Natural Disturbance - 2009/10

- For the third consecutive year, forest losses due to abiotic natural disturbances were low (fire, weather and blowdown – figure 2a);
- Forest fire activity was very low for a second year in a row at 545 hectares. Most of the fires that occurred were under 1 hectare in size;
- Forest insects caused significant mortality and growth loss (figure 2b). Spruce budworm typically affects large forest areas and causes the most mortality of any forest insect. In 2009/10, spruce budworm defoliation dropped significantly compared to previous years. Most of the spruce budworm defoliation occurred in the Northeast region between Sudbury and North Bay (figure 2g);
- The largest abiotic disturbance agent in 2009/10 was aspen decline. Over 3.8 million hectares occurred in the Northwest Region (Fort Frances and Geraldton areas). The cause of the decline is unknown at this time but is being investigated. Volume losses were estimated at over 7 million cubic metres (figure 2c);
- Detailed tables of area and volumes affected by natural disturbances are listed in the data section of this chapter; and
- Detailed summaries of major forest disturbances in 2009 are available on-line at: http://ontario.ca/forests.

Figure 2a - Total Provincial Area Disturbed by Abiotic Disturbances

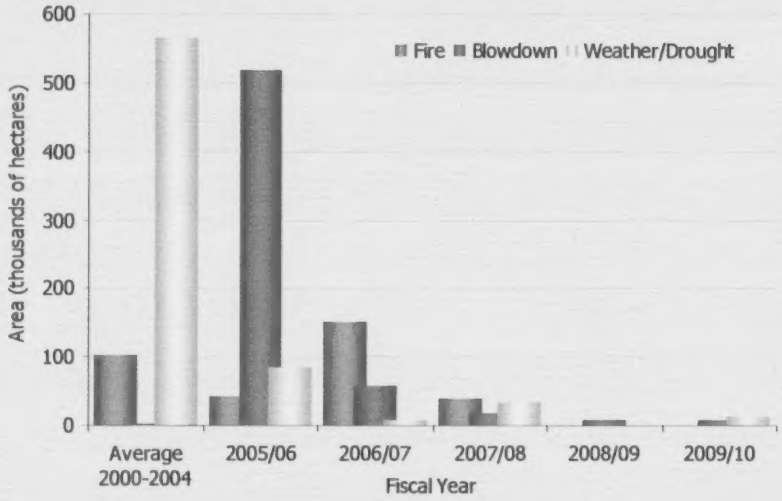


Figure 2b - Total Provincial Area Disturbed by Insects

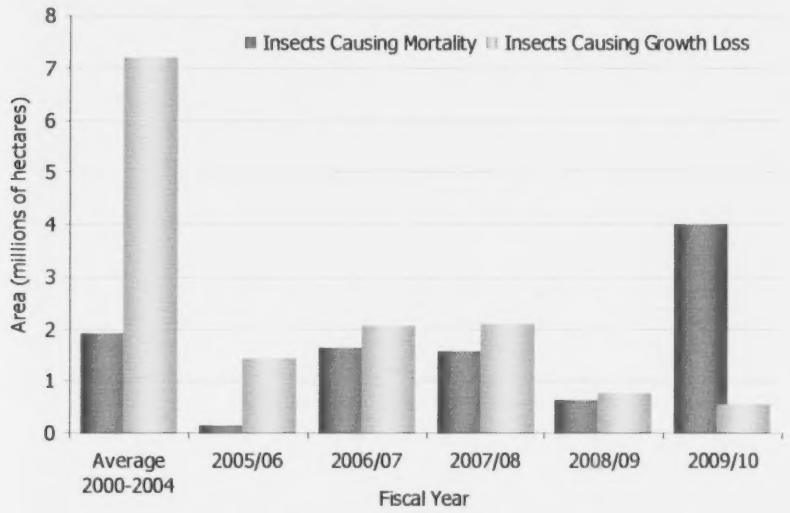
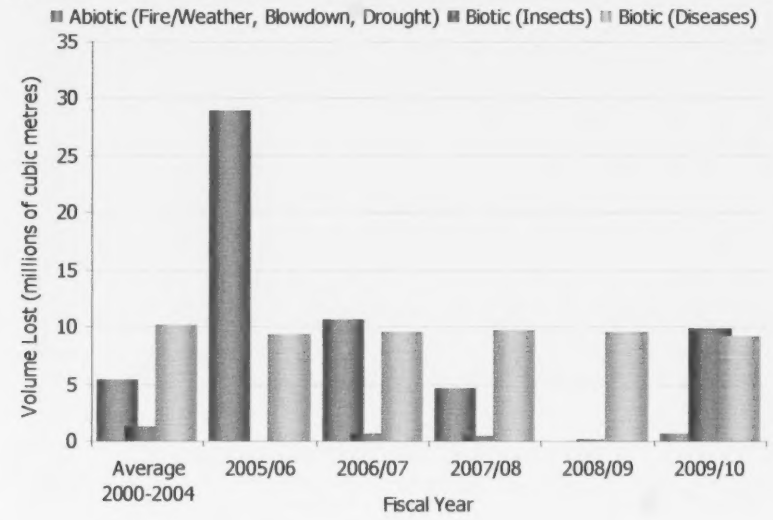
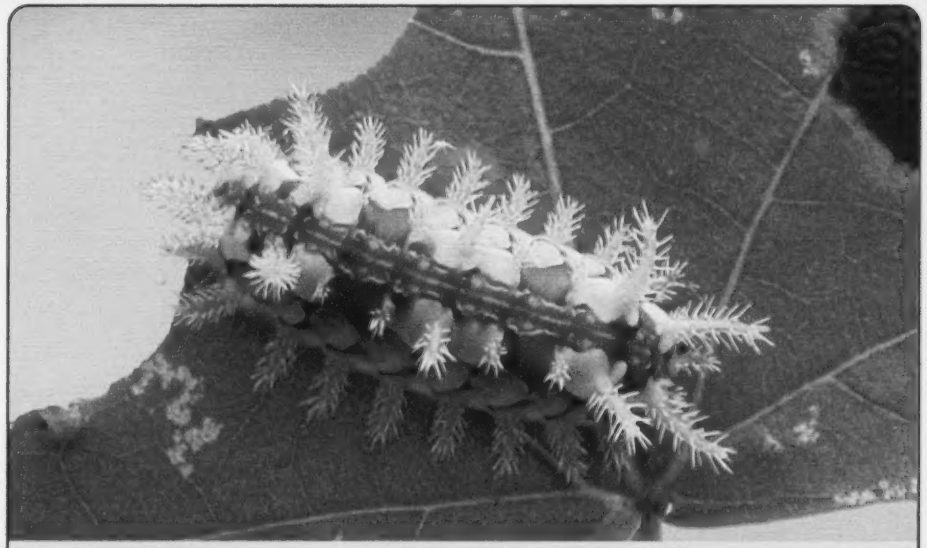


Figure 2c - Estimated Crown AOU Volume Lost to Natural Disturbances





Spiny Oak Worm

Blowdown

Background

There are two main groups of natural forest disturbances measured in Ontario, abiotic and biotic. Abiotic disturbances are those caused by non-living factors, including wildfire, drought, and severe weather such as wind, snow or hail. Biotic disturbances are those caused by living factors such as insects (forest tent caterpillars, gypsy moths, spruce budworm), or diseases (hypoxylon, root rot, or Stillwell syndrome).

Natural disturbances such as forest fires, insects, diseases, and severe weather events occur throughout the life cycle of the forest, as illustrated in Figure 2d. Natural disturbances (except for diseases) are measured both by area (hectares) and volume (cubic metres) of trees killed or damaged. Losses to tree diseases are estimated by calculating an annual average volume loss for all chronic diseases. Estimates of the area affected and wood volumes lost due to insects, disease, and severe weather are based on studies completed by a forest health monitoring partnership between the Canadian Forest Service and the MNR.

All estimates of disturbance area, both for the province and for the AOU, encompass all forest lands. Estimates for AOU disturbance volume, however, are based on Crown production forest lands only. Depending on the severity of damage to trees from these disturbances, it is often possible to conduct salvage operations in disturbed areas to harvest timber and reduce economic losses and the threat of forest fires. These operations are reported as harvesting, and discussed in the forest harvest section.

The total provincial area by natural disturbance type can be found in Tables 2a and 2b. Estimated volume losses for Crown AOU forests are summarzed in Table 2c and 2d. A summary of estimated volumes lost by tree species for all natural disturbances is found in Table 2e. Proportions of these areas are illustrated in Figures 2d, 2e and 2f.

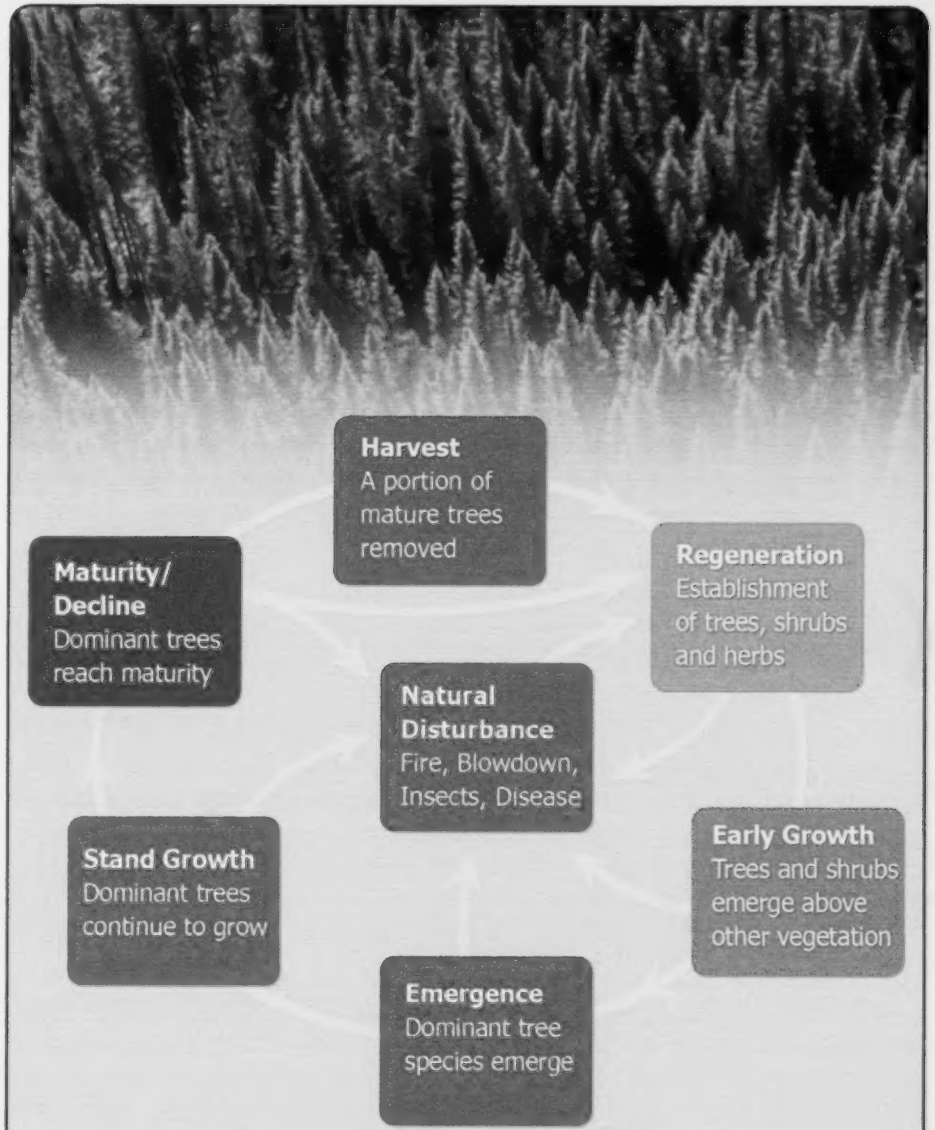


Figure 2d - the forest life cycle

Forest Fires

The MNR records the area and volume disturbed by forest fires across all forested areas. The number and size of forest fires varies dramatically year to year, depending on the weather. This variability is illustrated in Figure 2a, where the last five years of provincial fire disturbance is shown (as well as the average from the previous five year period). Estimated volume losses are found in Table 2c.

Severe Weather

Windstorm damage (commonly referred to as "blowdow"), drought, and cold weather damage (ice/snow - severe cold) are the most common weather related agents causing significant tree mortality and volume losses. Windstorms of various intensities occur periodically throughout the province. Damage from these storms is only recorded if it is discovered and if it is of a significant magnitude. Estimated volume losses are found in Table 2c.

Insect Damage

The damaged area and volume loss caused by the most destructive insects are based on estimates of forested areas where 30 percent or more of the foliage was removed. Usually, a number of years of repeated defoliation are required to kill a tree. This varies for each pest, the tree species being attacked, and other factors. Forested areas may be defoliated by more than one insect. Areas reported as defoliated may include different degrees of severity. The total area impacted by insects for the last five years is presented in Table 2a. Growth loss due to insects is reported in Table 2b. Estimated volume losses from insects are found in Tables 2c and 2d.

Diseases

The annual changes in area and volume in a forest stand that result from natural, disease-induced mortality are not usually significant enough to be recorded for inventory update purposes.

White Pine Blister Rust

Armillaria Root Rot Mushrooms

For example, chronic diseases such as root rot may kill only a few trees scattered throughout a forest stand. Therefore no area loss is recorded for most diseases. However an estimate of the volume of wood in the dead trees, and the volume of growth loss in the remaining live trees is made annually. Volume estimates of the effects of chronic disease are derived from estimates of growth and mortality losses caused by rot, stem decay, and foliage dieback. These estimated losses to disease for the last five years have been relatively stable, at somewhat less than 10 million cubic metres lost annually (Table 2c). Most of the estimated losses are in the form of tree mortality.

Calculating Volume Losses

There are two main groups of natural forest disturbances measured in Ontario, abiotic and biotic. Abiotic disturbances are those caused by non-living factors, including wildfire, drought, and severe weather such as wind, snow or hail. Biotic disturbances are those caused by living factors such as insects (forest tent caterpillars, gypsy moths, spruce budworm), or diseases (hypoxylon, root rot, or Stillwell syndrome).

Many of the insects and diseases that occur in Ontario's forests do not actually kill the trees they infest, but simply reduce the amount of growth that occurs in a spring/summer season. For example, a forest tent caterpillar infestation can reduce aspen growth by 75% in a season, and white birch by 40%. This growth loss is recorded as current annual increment volume (CAI). Many years of repeated defoliation can eventually lead to tree mortality, and this is recorded differently, as gross total volume (GTV) of wood lost.

Most abiotic disturbances like fire or blowdown cause major forest damage, and usually end up with significant tree mortality within the area of the disturbance. Each disturbance type is studied and growth loss or mortality factors are developed based on these field samples. Chronic tree diseases such as hypoxylon or root rot are not measured in area, as they are assumed to occur in most forested stands to some extent. Estimates by tree species and age are calculated for the entire AOU, and reported for Crown forests.

Surveying for Insect Damage

Data

Table 2a - Total Provincial Area of Natural Disturbance Causing Forest Mortality

Area in hectares

Disturbance Type	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Abiotic Damage - Wildfire and Weather						
Fire	103,079	42,847	149,807	40,150	238	545
Blowdown	3,434	516,920	57,636	17,924	6,630	7,947
Weather	550,798	960	-	936	509	12,151
Drought	14,136	82,867	7,071	33,315	-	-
Total:	671,447	643,594	214,514	92,325	7,377	20,642
Biotic Damage - Forest Insects and Disease						
Spruce Budworm	1,752,722	17,112	817,434	849,052	450,387	180,027
Jack Pine Budworm	1,039	98,306	791,888	687,715	138,103	5,938
Gypsy Moth	43,823	1,280	10,475	33,056	40,745	3,638
Poplar/Birch Complex	103,964	1,987	-	-	-	3,797,700
Other Insects	1,364	4,803	5,984	1,977	8,146	20,635
Total:	1,902,911	123,488	1,625,782	1,571,800	637,381	4,007,939
Total Mortality Area:	2,574,358	767,082	1,840,295	1,664,125	644,758	4,028,581

Table 2b - Total Provincial Area of Natural Disturbance Causing Forest Growth Loss

Area in hectares

Disturbance Type	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Abiotic Damage - Wildfire and Weather						
Weather	35,540	730,307	-	376,715	509	12,151
Drought	1,195,112	82,867	7,071	33,315	-	-
Total:	1,230,652	813,174	7,071	410,030	509	12,151
Biotic Damage - Forest Insects and Disease						
Spruce Budworm	185,033	337,245	817,434	849,052	450,387	291,628
Jack Pine Budworm	171	98,306	791,888	687,715	138,103	120,451
Gypsy Moth	43,823	1,280	10,475	33,056	40,745	3,638
Forest Tent Caterpillar	6,850,267	469,795	370,772	371,512	42,895	8,912
Poplar/Birch Complex	65,668	93,645	35,804	84,588	98,431	109,492
Other Insects	41,187	409,741	22,668	46,776	4,895	27,479
Total:	7,186,149	1,410,012	2,049,042	2,072,698	775,456	561,600
Total Growth Loss Area	8,416,801	2,223,185	2,056,113	2,482,728	775,965	573,750

Figure 2d - Volume Lost by Disturbance Type - 2009/10

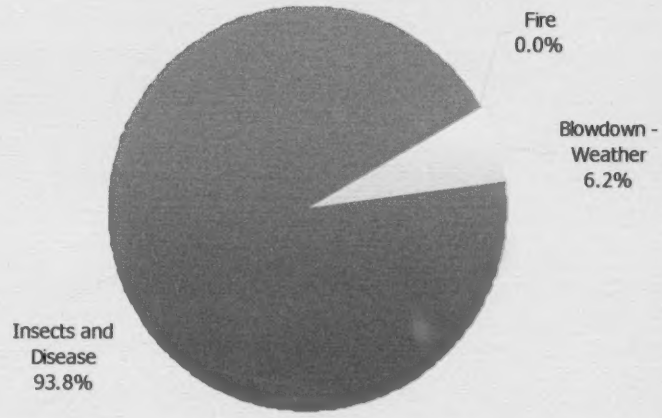


Figure 2e - Volume Lost by Disturbance Type - 2005-2009

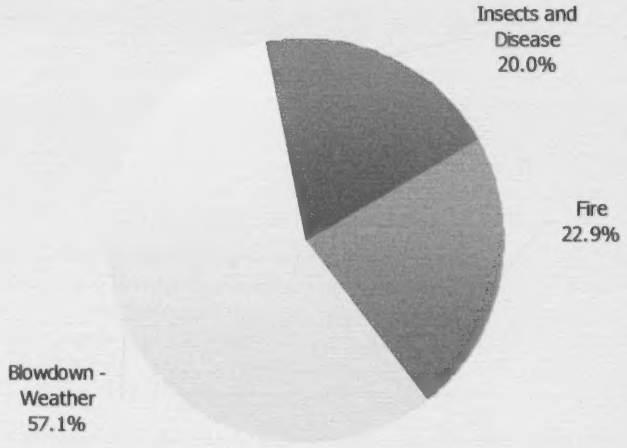


Table 2c - Crown AOU Volume - Natural Disturbance Causing Forest Mortality

Volume in m^3 (gross total volume)

Disturbance Type	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Fire	1,570,576	3,767,975	5,849,552	3,214,957	-	-
Blowdown/Weather	3,774,788	25,160,704	4,775,952	1,390,923	2,749	653,180
Insects and Disease	1,206,649	57,896	624,770	526,638	202,181	9,798,753
Chronic Diseases	10,137,722	9,409,456	9,595,952	9,689,325	9,519,692	9,215,711
Total:	16,689,734	38,396,031	20,846,226	14,821,843	9,724,622	19,667,644

Table 2d - Crown AOU Volume - Natural Disturbance Causing Forest Growth Loss

Volume in m^3 (current annual increment volume)

Disturbance Type	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Drought/Weather	189,287	7,883	1,671	503	-	826
Insects and Disease	1,567,145	81,228	142,710	138,712	64,560	30,457
Chronic Diseases	2,250,631	1,919,957	1,909,781	1,910,691	2,170,992	2,148,697
Total:	4,007,063	2,009,069	2,054,163	2,049,906	2,235,551	2,179,980

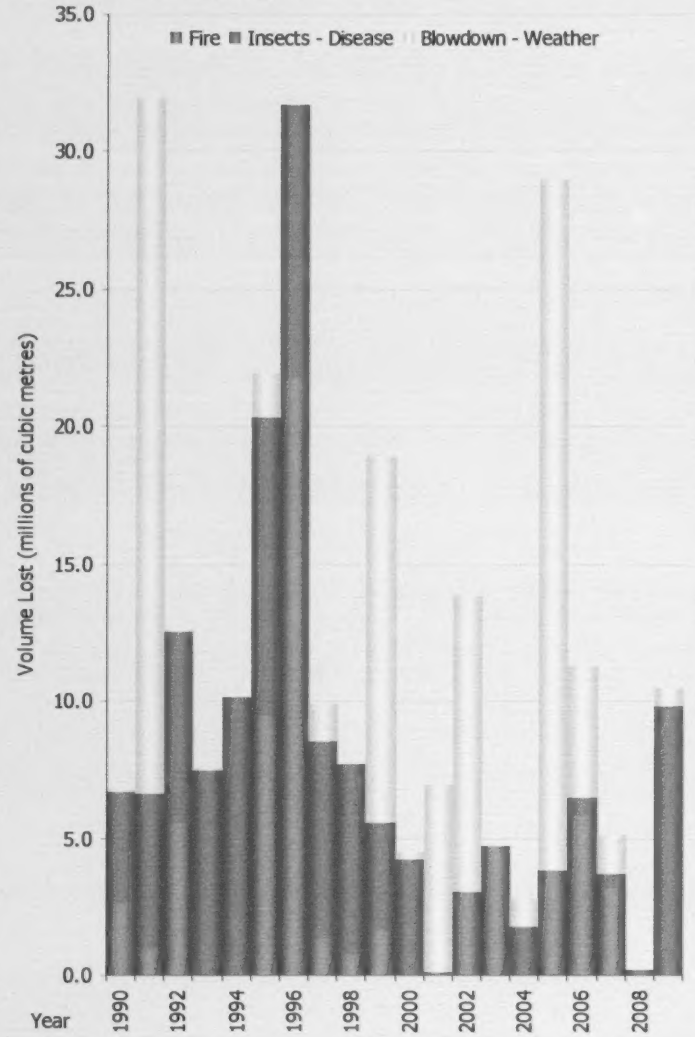
Table 2e - Crown AOU Volume - Natural Disturbance Causing Mortality by Tree Species

Volume in m^3 (gross total volume)

Tree Species	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Red & White Pine	88,748	79,623	691,750	85,795	72	1,327
Jack Pine	769,361	5,122,721	2,444,110	1,406,578	49,847	830,014
Spruce	2,953,852	13,728,765	1,565,909	1,727,142	8,774	357,854
Balsam Fir	848,821	984,079	382,769	441,906	122,787	68,024
Other Conifers	53,391	483,267	291,830	78,757	17,710	14,680
Poplar	1,185,169	6,853,655	2,658,267	976,286	4,113	9,142,552
White Birch	261,052	1,660,491	2,306,991	391,441	1,359	35,792
Oak	601	8,065	79,690	32	77	579
Maple	76	6,608	472,703	5,754	-	-
Other Hardwoods	392,192	59,302	368,262	18,825	193	1,112
Total:	6,553,263	28,986,575	11,262,282	5,132,518	204,930	10,451,933

Source: Natural disturbance mapping completed by Science and Information Branch. Volume estimates completed by Forest and Evaluation and Standards Section.

Figure 2f - Estimated Crown AOU Volume Lost to Natural Disturbances



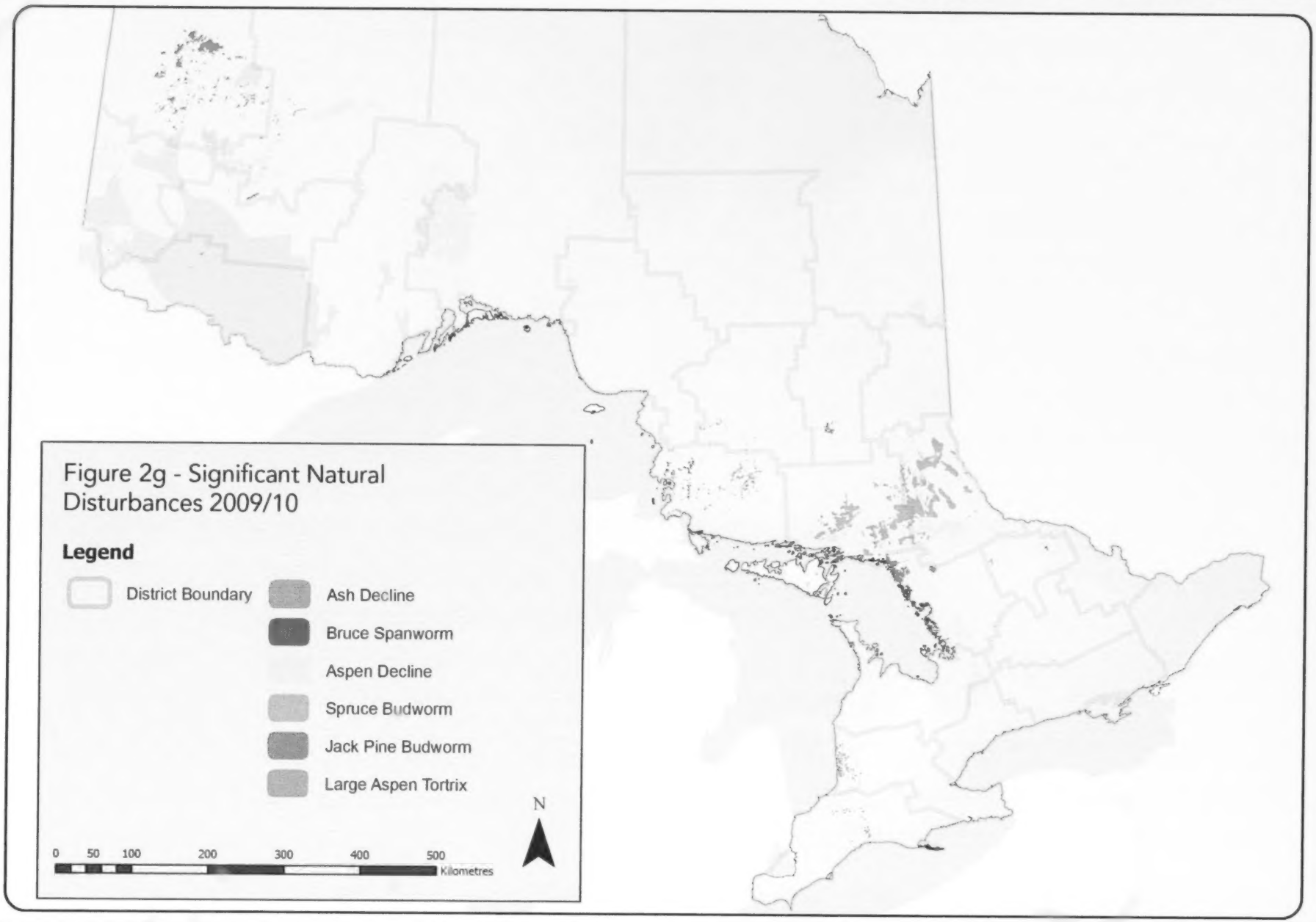


Figure 2g - Significant Natural Disturbances 2009/10
Legend
District Boundary
Ash Decline
Bruce Spanworm
Aspen Decline
Spruce Budworm
Jack Pine Budworm
Large Aspen Tortrix
N
0 50 100 200 300 400 500
Kilometres

Key Facts

This section reports on the level of forest harvesting activities. Forest managers are required to report the area and volume harvested from Ontario's Crown forests each year. Harvesting activities on private land are not reported.

Summary of Harvest Area – 2009/10

- Total area harvested on Crown land was 99,464 hectares, most of which was harvested under the clearcut silvicultural system (Figure 3a);
- Harvest levels in 2009/10 are one third of the allowable harvest area (Figure 3a). Market conditions have contributed to a significant drop in the area harvested over the last 4 years;
- Natural disturbances as reported in the previous section account for more area annually than harvesting (Figure 3b); and
- There were 851 hectares of natural disturbance that was salvaged for timber.

Figure 3a - Area Harvested by Silvicultural System

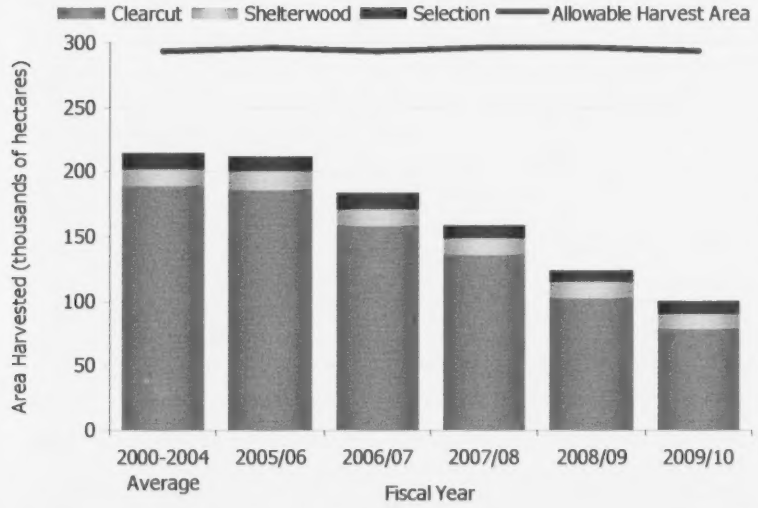
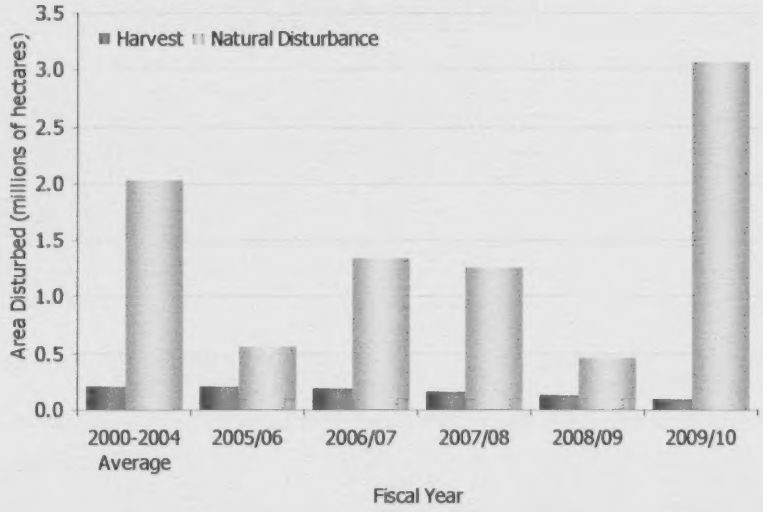


Figure 3b - Disturbance Area within the AOU



Summary of Harvest Volume - 2009/10

- Harvest volumes have dropped significantly over the last four years (Figure 3c and Table 3a) due to a downturn in the forest industry;
- 10.6 million cubic metres of wood was harvested on Crown land (Figure 3c); with the majority being softwood (conifer) volume;
- The total volume harvested is significantly lower than the total mortality volume (19.7 million) caused by insect, disease, severe weather and fire combined (Table 3c and Figure 3d, 3e, 3f); and
- Harvest levels in 2009/10 are one third of the allowable harvest volumes (Figure 3c);

Table 3a - Harvest volume by species (cubic metres) 2009/10

Softwood Species	Volume (m^3)
White Pine	405,907
Red Pine	167,989
Jack Pine	3,219,323
Spruce	3,048,531
Hemlock	14,037
Balsam Fir	253,239
Cedar	8,224
Larch	32,804
Other Softwood	267,453
Total Softwoods	7,417,507

Hardwood Species	Volume (m^3)
Maple	508,499
Yellow Birch	40,474
White Birch	403,397
Oak	21,011
Beech	21,985
Poplar	1,974,748
Basswood	5,460
Ash	3,773
Other Hardwood	204,613
Total Hardwoods	3,183,960

All Species Total	10,601,467

Figure 3c - Softwood and Hardwood Volumes Harvested

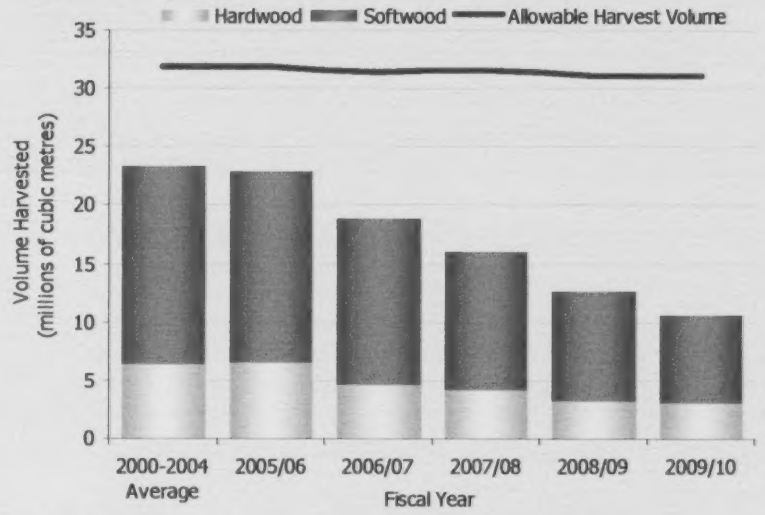
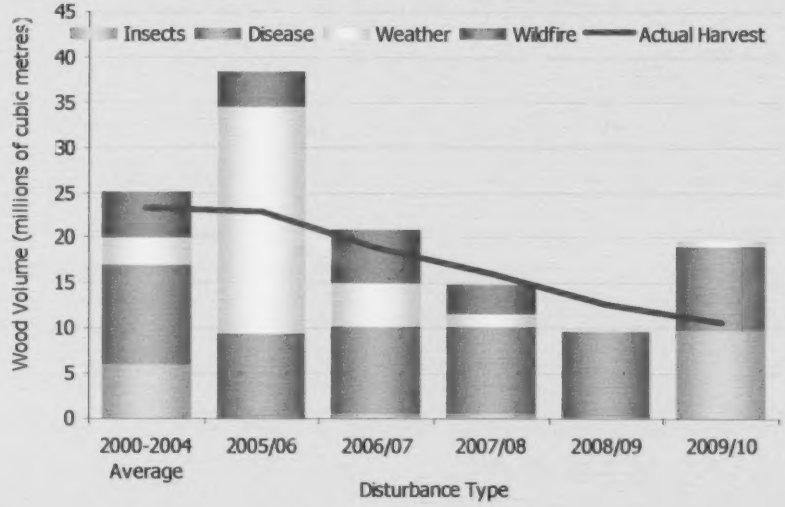


Figure 3d - AOU Volume for Harvest & Natural Disturbances



Summary of Clearcut Size – 2009/10

Management unit annual reports were analyzed to determine size and frequency of areas cut under the clearcut silviculture system in 2009/10:

Boreal Forest Region

- In 2009/10, there were a total of 852 active clearcut harvest areas in the Boreal Forest Region. Of these clearcuts, 826 (97%) were less than 260 hectares in size. The average clearcut size was 60 hectares and the maximum clearcut was 1,422 hectares.

Great Lakes-St. Lawrence Forest Region

- In 2009/10, there were a total of 654 active clearcut harvest areas in the Great Lakes-St. Lawrence Forest Region. Of these clearcuts, 647 (99%) were less than 260 hectares in size. The average clearcut size was 40 hectares and the maximum clearcut was 754 hectares.

Management Unit Annual Reports are available online at MNR's electronic Forest Management Planning Website: http://ontario.ca/forestplans. Additional details regarding clearcut size under the clearcut silvicultural system can be observed in these reports.

**The Sapawe Forest did not submit an Annual Report for the 2009/10 fiscal year. All area values include estimates for the Sapawe Forest based on the 2008/09 Annual Report. Harvest volumes reflect actual 2009/10 values based on scaling records.*

Clearcut Harvest

Background

Ontario's forests are harvested in a sustainable manner and are regulated and monitored according to an approved Forest Management Plan (FMP). The MNR requires that the allowable harvest for a management unit be set at a level that will sustain a healthy forest. The FMP specifies both the allowable harvest area and the associated harvest volumes. However, in Ontario the regulation of allowable harvest is based on area, not volume.

The majority of harvesting activities on Ontario's Crown forest takes place in the Boreal and the Great Lakes-St. Lawrence Forest Regions, within the Area of the Undertaking.

Silviculture Systems Used in Ontario

Harvesting is one of a series of actions that when combined with forest renewal and maintenance activities (e.g., tending, protection), represent a silviculture system. These systems are classified according to the method of harvesting. Ontario uses three silviculture systems: selection, shelterwood, and clearcut. The different silviculture systems are used to optimize the regeneration of the forest. The silviculture system chosen is based on the characteristics of the current forest stand as well as the desired future forest condition.

Selection Silviculture System

In the selection system, mature, unhealthy or undesirable trees in a forested stand are individually harvested (or in small groups) on a cutting cycle that ranges from 10 to 40 years. This method produces stands with trees of different ages, and is referred to as uneven-aged management.

Selection Harvest

The selection silviculture system is mainly used in stands of shade tolerant hardwoods (e.g., maple, oak, and beech). The trees left behind provide the necessary shade for the regenerating forest below. The selection silviculture system is mainly used in the Great Lakes-St. Lawrence Forest Region.

Shelterwood Silviculture System

In the shelterwood system, mature trees are harvested in a series of two or more cuts to encourage natural regeneration and growth under or next to the residual trees. This is done by cutting trees uniformly over the stand area or in groups or narrow strips. Since stands with trees approximately the same age are produced with this system it is referred to as even-aged management. The shelterwood system is used in both the Boreal and Great Lakes-St. Lawrence Forest Regions and is mainly applied to forest stands of white and red pine as well as tolerant hardwoods.

Clearcut Silviculture System

Forest harvesting under the clearcut system is usually completed in one operation. Individual trees within the harvest area and/or parts of forest stands are retained for silvicultural reasons (e.g., seed trees) or to provide protection for forest values (e.g., marten habitat or cavity dwelling birds). Regeneration methods used can be natural, assisted (e.g., planting or seeding) or a combination of both methods.

This method is also an even-aged system, with the majority of the regenerating trees being the same age. The clearcut system is mainly with tree species (e.g., aspens, black and white spruce, poplar and white birch) that are adapted to regenerating after natural disturbances, such as wildfires. Currently, in Ontario, clearcut practices are designed to emulate these natural disturbances.

Shelterwood Harvest

Natural Disturbance Pattern Emulation (NDPE)

The NDPE guide of 2001 led Ontario to change its forest practices to better maintain forest biodiversity and natural processes. This is accomplished, in part by, emulating as closely as possible the landscape patterns produced by forest fires (e.g., variation in size and shape). This pattern of harvesting is generally referred to as Natural Disturbance Pattern Emulation and is most notably being implemented as part of the clearcut silviculture system in the Boreal forest.

While forest harvesting cannot precisely duplicate natural disturbances, the NDPE guide promotes timber harvesting practices that emulate the natural range and pattern of fire disturbances (both small and large). This harvest pattern creates desirable habitat for various wildlife species. Smaller disturbances favour the creation of habitat for species such as moose, black bear and ruffed grouse, because this size of disturbance maximizes "edge" (where different forest types, features, or age classes come together). Larger disturbances create habitat for species which prefer large, uniform forests, such as the woodland caribou. Wildlife species are adapted to, and thrive in forest patterns that have largely been shaped by wildfire.

The NDPE guide also includes a standard for clearcut size. Eighty percent of the planned clearcuts in the Boreal Forest Region, and 90% of the planned clearcuts in the Great Lakes-St. Lawrence Forest Region are to be less than 260 hectares. In addition the guide gives direction on measuring the size of contiguous clearcuts, including requirements for temporal and spatial separation. Generally, an adjacent clearcut is considered contiguous if there is less than 200 metres of forested area separating it from the next clearcut. Also, if an adjacent clearcut is over three metres tall or 20 years old it is not considered part of the clearcut.

NDPE Guide harvest block

New landscape guides developed in 2010 will replace the direction in the NDPE guide. *The Forest Management Guide for Great Lakes-St. Lawrence Landscapes (the GL-SL Landscape Guide)* and the *Forest Management Guide for Conserving Biodiversity at Stand and Site Scales* (the Stand and Site Guide), will be implemented with forest management plans beginning in April 2011. The landscape guide applies only to the Great Lakes - St. Lawrence forest region. The NDPE Guide will continue to be used for the boreal forest region until the boreal landscape guide is approved.

Clearcut Harvest

Data

Table 3b - Harvest volume by species (cubic metres)

Tree Species	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Softwood Species						
White Pine	483,282	474,235	575,258	384,925	365,854	405,907
Red Pine	235,465	225,136	252,351	178,322	193,499	167,989
Jack Pine	5,818,193	5,427,202	4,652,088	4,180,294	3,180,122	3,219,323
Spruce	9,769,174	9,597,609	8,190,260	6,471,432	4,919,571	3,048,531
Hemlock	26,667	25,456	33,720	26,666	25,944	14,037
Balsam Fir	554,091	536,170	418,950	443,726	355,014	253,239
Cedar	25,827	65,759	12,860	30,336	13,565	8,224
Larch	32,732	58,617	21,150	38,731	28,980	32,804
Other Softwood	132	12,528	28,611	119,292	232,243	267,453
Total Softwoods	16,945,562	16,422,711	14,185,249	11,873,722	9,314,792	7,417,507
Hardwood Species						
Maple	586,089	664,641	699,730	620,966	564,417	508,499
Yellow Birch	49,108	64,581	51,462	42,718	41,956	40,474
White Birch	520,640	823,274	544,439	550,046	397,762	403,397
Oak	36,773	45,412	37,655	36,845	32,243	21,011
Beech	37,422	47,765	49,577	42,688	28,844	21,985
Poplar	5,165,621	4,802,725	3,271,073	2,756,150	2,096,666	1,974,748
Basswood	13,792	15,194	13,451	14,451	8,436	5,460
Ash	4,291	6,295	7,211	5,865	5,266	3,773
Other Hardwood	2,111	5,798	13,730	108,981	132,228	204,613
Total Hardwoods	6,415,846	6,475,685	4,688,329	4,178,711	3,307,819	3,183,960
All Species Total	23,361,408	22,898,396	18,873,577	16,052,433	12,622,611	10,601,467

Table 3c - AOU Volume for Harvest and Natural Disturbances

Disturbance Type	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Harvest	23,361,408	22,898,396	18,873,577	16,052,433	12,622,611	10,601,467
Insects	6,066,892	57,896	624,770	526,638	202,181	9,798,753
Disease	10,949,673	9,409,456	9,595,952	9,689,325	9,519,692	9,215,711
Weather	2,993,829	25,160,704	4,775,952	1,390,923	2,749	653,180
Fire	5,126,327	3,767,975	5,849,552	3,214,957	-	-
Total	48,498,129	61,294,427	39,719,804	30,874,276	22,347,233	30,269,111

Figure 3e - Harvest Volume by Species - 2009/10

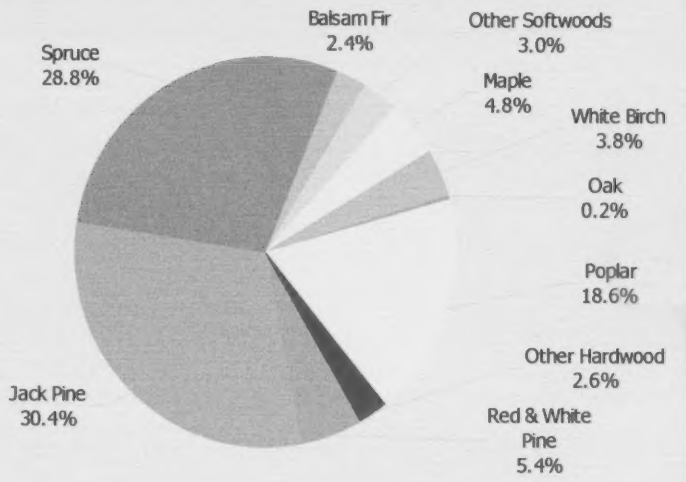
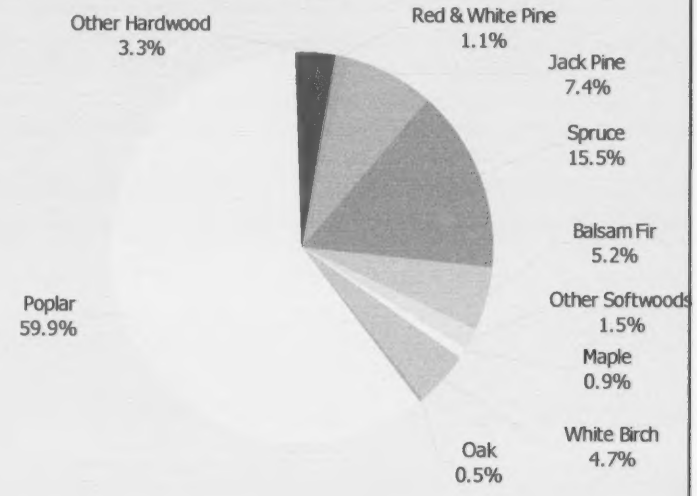


Figure 3f - Natural Disturbance Volume by Species - 2009/10



Key Facts

This section reports on forest renewal and tending activities (e.g., tree planting and aerial tending), protection (i.e. activities to prevent or manage damage caused by natural disturbances) and funding for renewal and maintenance activities.

Summary of Forest Renewal and Tending Activities - 2009/10

- Market conditions that led to reduced harvest levels resulted also in a reduction in planting, seeding, site preparation and chemical tending (Figure 4a);

Figure 4a - Harvest and Regeneration Area

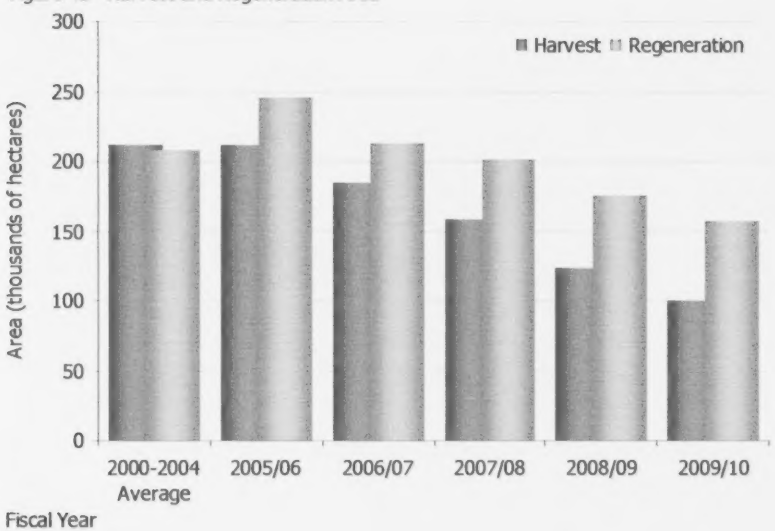
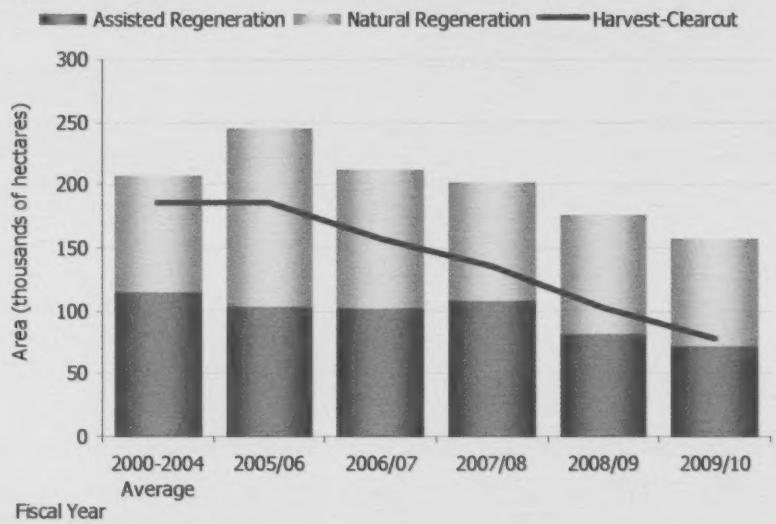


Figure 4b - Regeneration Area - Clearcut Silvicultural System



- Total regeneration efforts have decreased (a direct result of decreased harvest activity), but the level of regeneration (natural and assisted) continues to be well above the level of harvest (Figure 4a);
- Shelterwood and selection silviculture systems remain at a relatively consistent level of harvest (Figure 4c and 4d);
- Tree planting continued to be the main method of assisted regeneration, with nearly 82 million trees planted in 2009/10 (Figure 4e). Natural regeneration was the preferred option to renew areas affected by natural disturbances (e.g., fire, insect, weather events);
- Figures 4b, c, d and e provide a five year overview of forest renewal trends.

Figure 4c - Area of Regeneration - Selection Silvicultural System

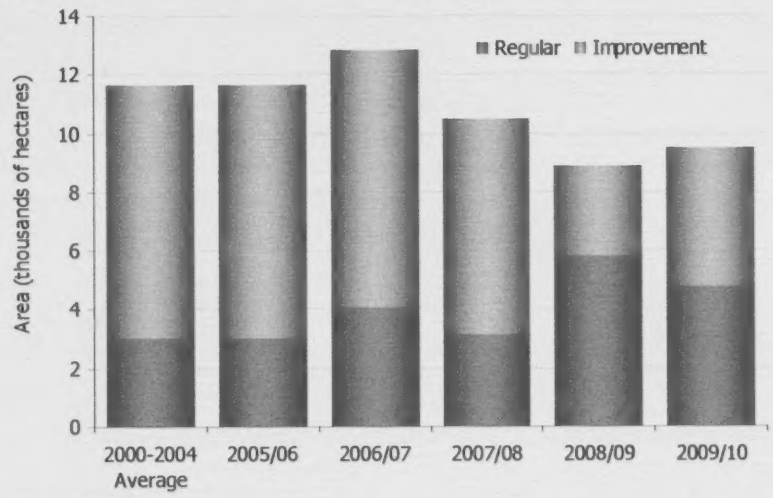


Figure 4d - Area of Regeneration - Shelterwood Silvicultural System

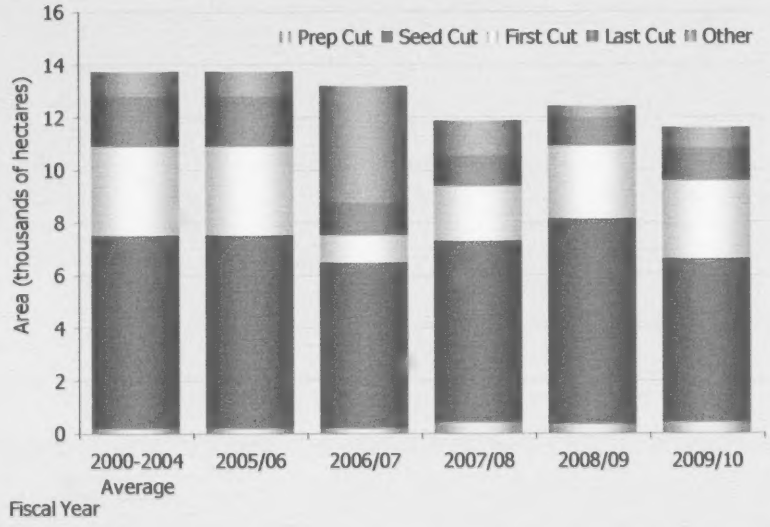
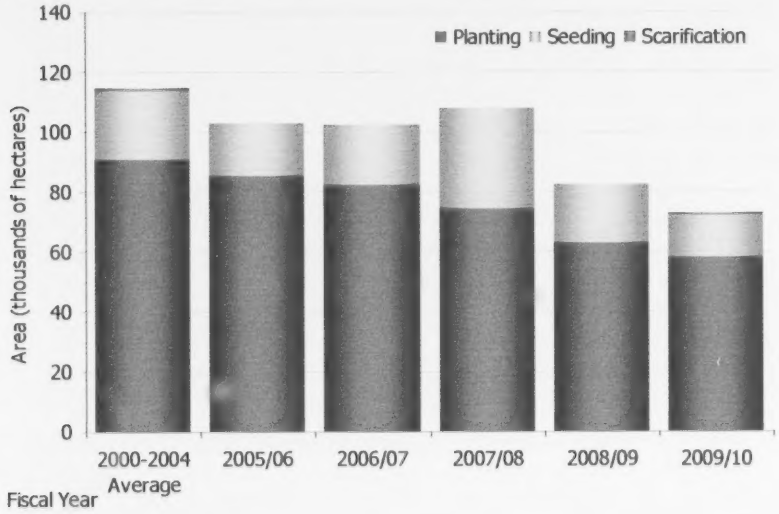


Figure 4e - Area of Planted, Seeded and Scarified Regeneration



- Mechanical site preparation decreased significantly in 2009/10. Low levels of mechanical site preparation indicates that planting and seeding in future years will decrease until harvest levels begin to increase (Figure 4f);
- There were no prescribed burns conducted for site preparation purposes; and
- Tending activities were lower than the long-term average, but 2009/10 levels remained consistent with 2008/09 levels (Figure 4g).

Detailed tables of renewal activities are contained in the data portion of this section.

Note: The Sapawe Forest did not submit an Annual Report for the 2009/10 fiscal year. All area values include estimates for the Sapawe Forest based on the 2008/09 Annual Report

Figure 4f - Area of Site Preparation

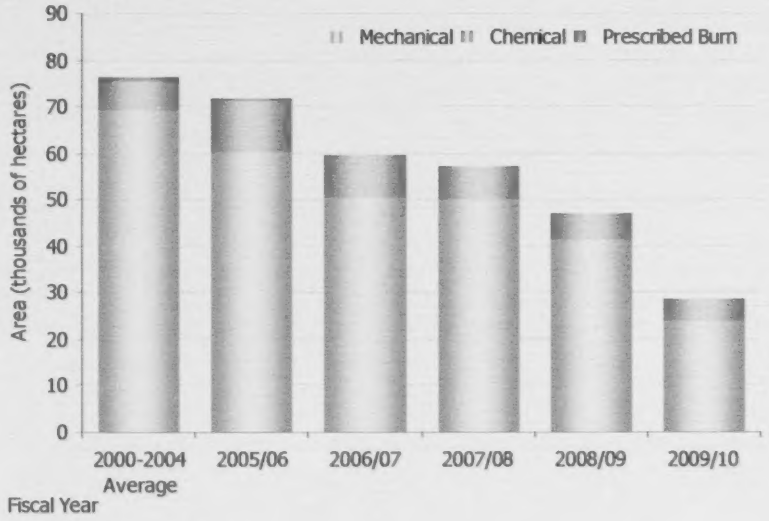
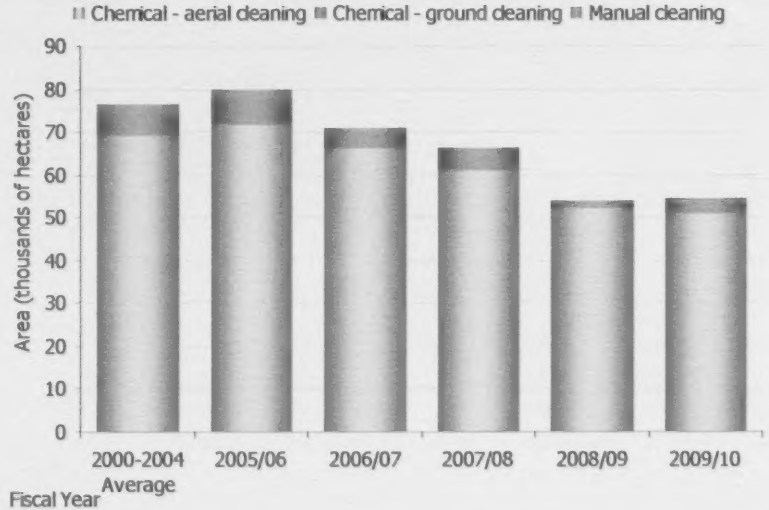


Figure 4g - Area Tended



Summary of Protection - 2009/10

- Protection operations prevent or manage the damage caused by insects and diseases; and
- Monitoring of a portion of the 2009/10 major forest disturbances found moderate-to-severe defoliation by jack pine budworm in several jack pine stands totalling 205,701 ha. Assessments of overwintering populations of the budworm forecasted moderate-to-severe defoliation in the Whitefeather Forest (Red Lake District) and Timiskaming Forest (Timmins District). Aerial spray programs of 55,000 ha and 98,146 ha were conducted in 2009/10 using the bacterial insecticide B.t.k. to protect wood supply and reduce fire hazard in these two areas.

Summary of Forest Renewal and Maintenance Funding - 2009/10

- Due to reduced harvest levels, revenue to the Trust Funds decreased. Silvicultural expenditures from the Forest Renewal Trust Fund were greater than the contributions for 2009/10. However, revenue contributions from past harvest levels provided for adequate funding to the Forest Renewal Trust Fund to ensure regeneration activities continued as required (Table 4a).

Table 4a - Provincial forest renewal expenditures and contributions - 2009/10

Source	Expenditures (million $)	Contributions (million $)
Forest Renewal Trust Fund	$49.6	$31.8
Forestry Futures Trust Fund	$14.2	$19.1
Special Purpose Account	$0.6	n/a
Direct MNR Expenditures	$0.1	n/a
Total	$64.5	$50.9

Forestry Futures Project

Background

Forest Renewal and Tending Activities

The CFSA requires forest managers to carry out renewal activities on harvested areas to provide for the sustainability of Crown forests. Forest maintenance operations are also required and conducted on Ontario's Crown forests. These operations include tending activities carried out to improve the survival, growth, composition or quality of a regenerating forest, and protection operations carried out to manage or prevent the damage caused by forest insects and diseases.

Forest renewal follows disturbance in the life cycle of a forest. Whether a forest is disturbed by natural means (e.g., fire, insect, severe weather event) or through harvest activities, a new forest begins to develop almost immediately following the disturbance event. Forest renewal may occur through natural means or through various methods of assisting the renewal process (planting or seeding). Forest renewal includes a variety of activities that can take place in various combinations. Activities needed to ensure the successful regeneration of all harvested areas are specified in approved FMPs.

Planting and seeding are the two most common types of assisted regeneration. Seeding may be carried out directly from aircraft or by seeders on the ground. The regeneration establishment period, from harvest to completion of the planting or seeding can take up to five years.

Many tree species can re-establish on a site without planting or seeding. These natural regeneration processes include seeding from the adjacent forest or from cones left on site after the harvest (jack pine), suckering of stumps and roots (poplar), and continued growth of young trees remaining on the harvested area (black spruce). This natural regeneration can be enhanced through careful selection of the silvicultural system and harvest method.

Tree planting

The choice of silvicultural system or harvest method used is largely dependent on the biological requirements of the different tree species. The silvicultural systems used in Ontario are described in more detail in the harvest section of this report.

The clearcut silvicultural system is the primary system used in the Boreal forest of the Northeast and Northwest regions, mainly in stands containing jack pine, black spruce, poplar and white birch. Natural regeneration using the clearcut silvicultural system can be broken down into several categories (Table 4a - Block cut, HARP/HARO, CLAAG, Strip cut and Seed Tree Cut).A block cut is the removal of the stands in a single pass or one operation and leaving the renewal of the area to natural means.

HARP or HARO (harvest and regeneration program/option) is an operational practice that occurs in uneven-aged lowland black spruce ecosystems. The objective of this method is to remove the dominant canopy and retain trees below a set diameter limit; this will leave a significant component of the overstory intact for natural regeneration of the future stand.

CLAAG (careful logging around advanced regeneration) is an operational practice that can be applied with any harvest method under the clearcut silvicultural system. The objective for this method is to remove the overstory and retain or protect the understory to facilitate natural regeneration.

A strip cut involves the removal of the stand in progressive strips or blocks in more than one operation. The strip cut method is prescribed to encourage natural regeneration, provide wildlife habitat, protect fragile sites or for aesthetic reasons.

A seed tree cut involves the removal of all commercial trees from an area, except for a small number of seed bearing trees left singly or in small groups for regeneration purposes. The seed tree method is used primarily in white pine and red pine stands in the Northwest and Northeast regions.

CLAAG (at ground level)

CLAAG (aerial view)

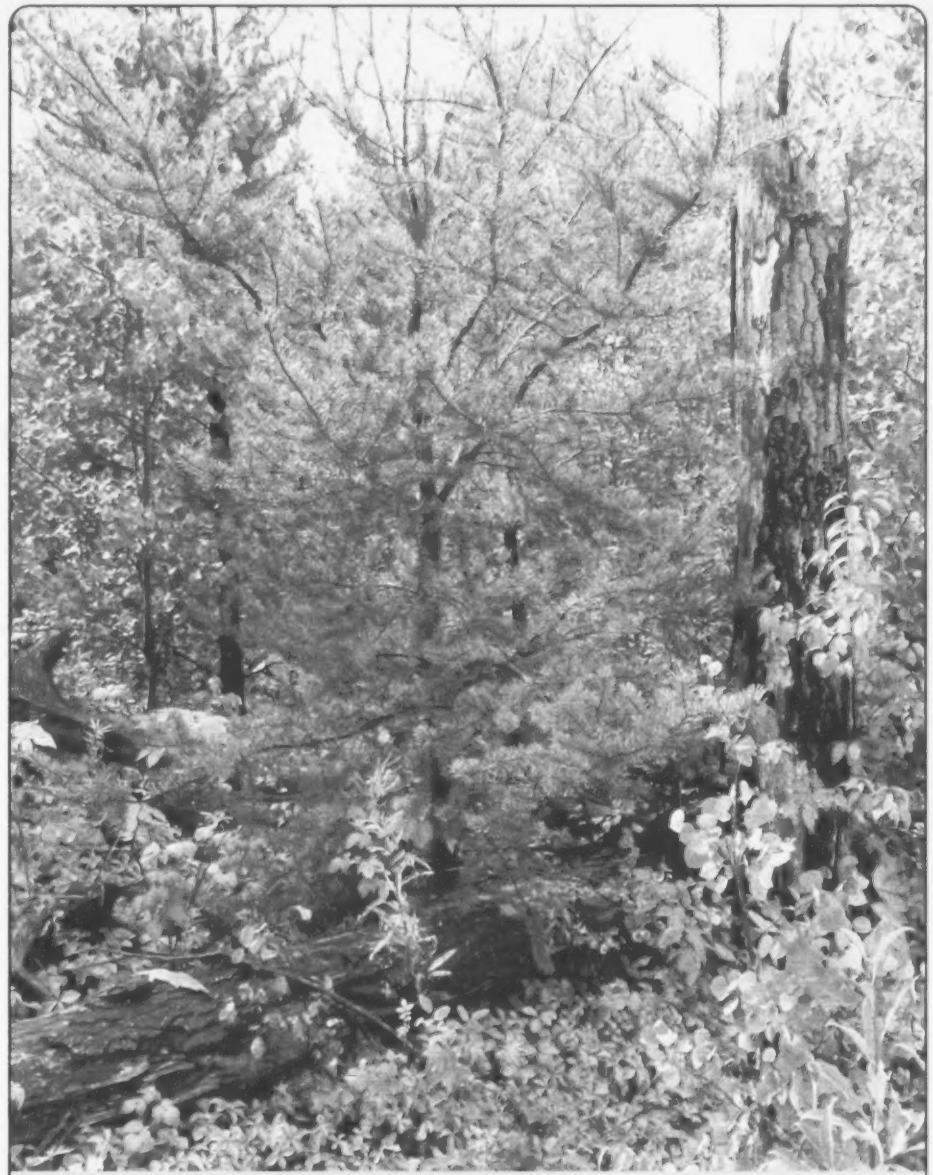
Natural regeneration using the shelterwood silvicultural system occurs mainly in white pine and tolerant hardwood stands in the Northeast and Southern regions.

Natural regeneration under the uneven-aged selection silvicultural system is carried out in tolerant hardwood stands mainly found in the Great Lakes - St. Lawrence forest region. In cases where planned natural regeneration is not successful, forest managers may assist regeneration through planting or seeding.

Assisted regeneration efforts generally promote the renewal of a disturbed area by either seeding or planting. In an effort to increase regeneration success, a site preparation treatment is often completed prior to the seeding or planting operation. Site preparation is done to provide suitable soil conditions to promote seed germination and the subsequent development of a seedling, or to promote the establishment and development of a planted seedling. Site preparation can be accomplished through mechanical or chemical means, or by prescribed burning. Regeneration levels tend to follow fluctuations in harvest levels and, to a lesser degree, forest depletions from natural disturbances such as forest fires and insect epidemics.

Further treatments may be employed to assist the trees in the developing forest stand to get established. These treatments are generally referred to as tending activities and include the operations of weeding, cleaning, thinning, spacing and stand improvement. Forest tending operations are carried out to improve the survival, growth, or quality of a regenerating forest. Tending may be done in young stands to help achieve a successful result in establishing a desired forest or may be conducted in uneven-aged stands to maintain the desired age-class distribution and volume.

An assessment of regeneration success is also a requirement of the renewal process and is summarized in the Forest Renewal Assessment Section.



Forest fire area seeded with jack pine

Protection

Forests are protected from a number of threats in order to maintain their benefits to the environment and society. These threats include insects, disease, extreme weather events, forest fires and damage from animals that eat foliage and small twigs.

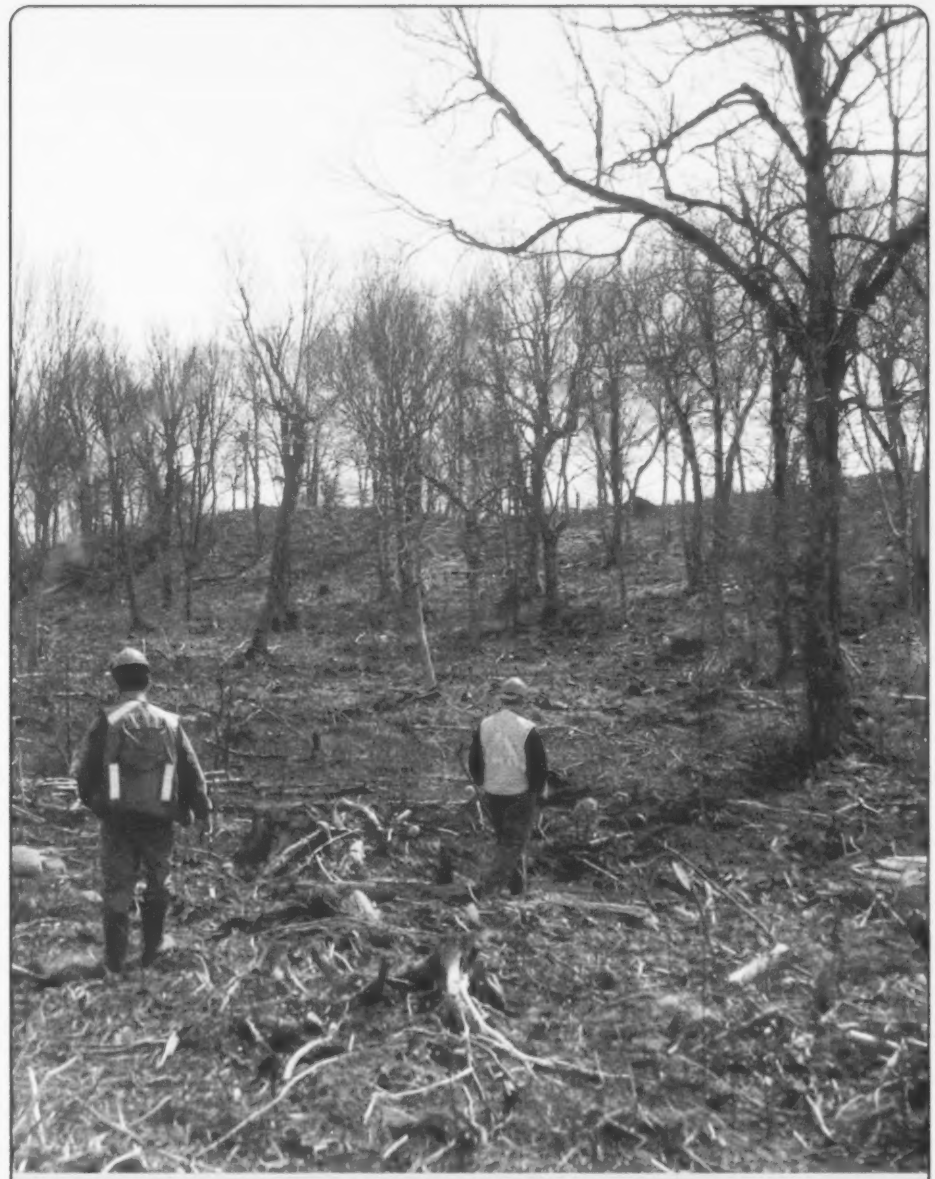
All of these threats are a natural and necessary part of the forest ecosystem and do not have a significant impact on the forest when they occur on a small scale. When they occur over large areas or in very valuable stands, they can cause serious losses to the productivity of the managed forest. In these situations, some form of protection may be required.

Protection from these natural threats can be provided through appropriate levels of management planning and silvicultural practices. For example, regenerating forests with a mixture of species using genetically superior seed or seedlings and maintaining optimum spacing can help reduce the impact of insects and diseases.

Fire is an important component of forest ecosystems. Forest fire suppression protects human life, private property or large financial investments. Fires in more remote areas are assessed for their risks to these values. If the risk to human life, private property or large financial investments is significant, then fire protection measures are undertaken. Otherwise, nature is allowed to run its course. Other protection activities that occur in Ontario's forests include activities to manage insect or disease outbreaks like spraying affected areas or harvesting affected trees.

Funding for Forest Renewal and Maintenance

The financial mechanisms established under the CFSA, and as outlined in the forest industry section, ensure that there is funding available for forest renewal and maintenance. Each licensee pays an appropriate renewal charge to an account in the Forest Renewal Trust Fund, which may only be used to conduct



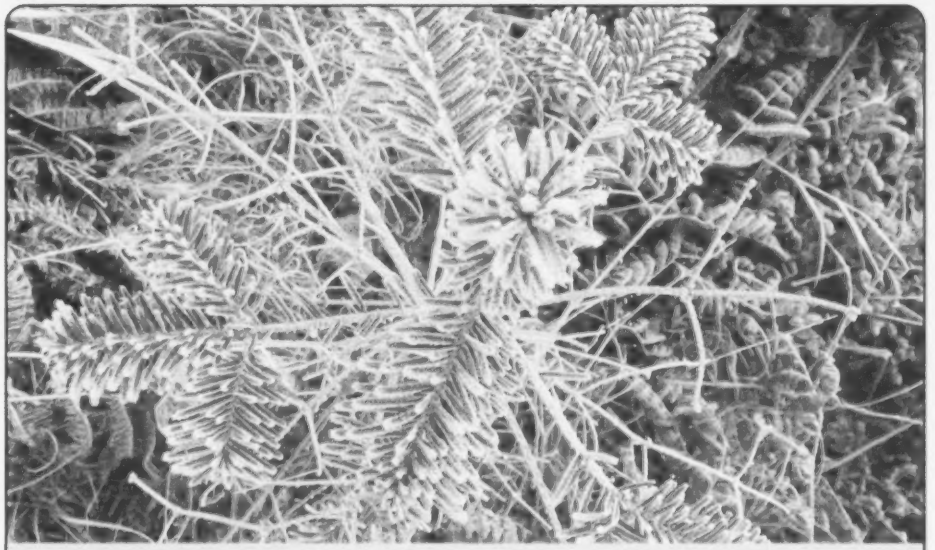
Yellow birch stand scarified to promote seedlings

eligible silviculture work on the management unit from which the stumpage was generated upon harvest.

Forest resource licensees, operating on management units where no sustainable forest licence (SFL) exists, pay renewal charges into the Forest Renewal Special Purpose account. This account provides dedicated funding for forest renewal and tending operations on the management unit. The MNR is responsible for administration of the Forest Renewal Special Purpose Account. As with the Forest Renewal Trust Fund, each management unit has its own separate account to cover forest renewal and tending costs.

Revenue for a third fund, the Forestry Futures Trust Fund, comes from a portion of the Crown charges that all licensees are required to pay. In addition, any administrative penalties assessed under the CFSA are paid into the Forestry Futures Trust Fund. In addition to these trust funds and special purpose accounts, the MNR supports forest renewal through the operation of the Ontario Tree Seed Plant and tree improvement programs.

Adjustments to renewal charges occur on individual management units to reflect the local costs of renewing and tending various species and to reduce specific accumulated surpluses in individual Renewal Trust Fund accounts. These rates are reviewed and adjusted annually to ensure that adequate levels of funding are maintained. A complete listing of renewal charges for each management unit can be found at: http://ontario.ca/forests.



Young balsam fir

Seed cone (with jack pine seedling)

Data

Table 4b - Provincial Renewal Operations

Units in hectares unless otherwise noted

Renewal Operation	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Natural Regeneration						
Clearcut Silvicultural System						
Block Cut	58,658	107,073	73,911	63,649	58,125	58,414
HARP/HARO/CLAGG	10,986	14,823	14,288	11,611	13,355	4,049
Strip Cut	69	2	0	115	1	114
Seed Tree Cut	4,535	1,233	1,164	901	847	1,209
Shelterwood System	8,196	6,766	8,450	7,093	12,115	10,860
Selection System (uneven-aged)	11,181	11,715	12,323	10,040	8,830	9,503
Subtotal	93,624	141,613	110,135	93,408	93,272	84,148
Assisted Regeneration						
Planting	91,041	85,187	82,538	74,725	63,207	58,309
Trees (000's planted)	136,022	126,708	119,138	109,161	95,665	81,946
Seeding						
Direct	19,168	15,116	17,945	32,488	18,336	13,949
With Site Preparation	4,002	2,828	1,860	591	644	0
Scarification	546	108	224	88	32	488
Subtotal	114,757	103,240	102,567	107,893	82,219	72,745
Total Regeneration	208,382	244,852	212,703	201,301	175,491	156,893
Site Preparation						
Mechanical	69,091	60,087	50,455	50,153	41,610	23,778
Chemical	6,479	10,943	9,131	6,841	5,274	4,774
Prescribed Burn	686	401	0	29	0	0
Total Site Preparation	76,255	71,431	59,586	57,022	46,885	28,552

Table 4c - Provincial Tending Operations (hectares)

Tending Operation	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Cleaning						
Manual	2,359	1,648	991	477	272	1,006
Chemical-ground	5,071	6,200	3,549	4,489	1,161	2,386
Chemical-aerial	69,136	71,762	66,301	61,217	52,418	51,030
Mechanical	499	0	0	0	0	21
Sub-total	77,065	79,610	70,841	66,183	53,851	54,443
Spacing, Precommercial Thinning, Improvement Cutting						
Even-aged	9,665	10,567	5,145	4,175	2,951	2,769
Uneven-aged	9,053	8,610	8,735	7,352	3,059	4,748
Sub-total	18,718	19,177	13,880	11,528	6,010	7,517
Total	95,783	98,786	84,721	77,711	59,861	61,960

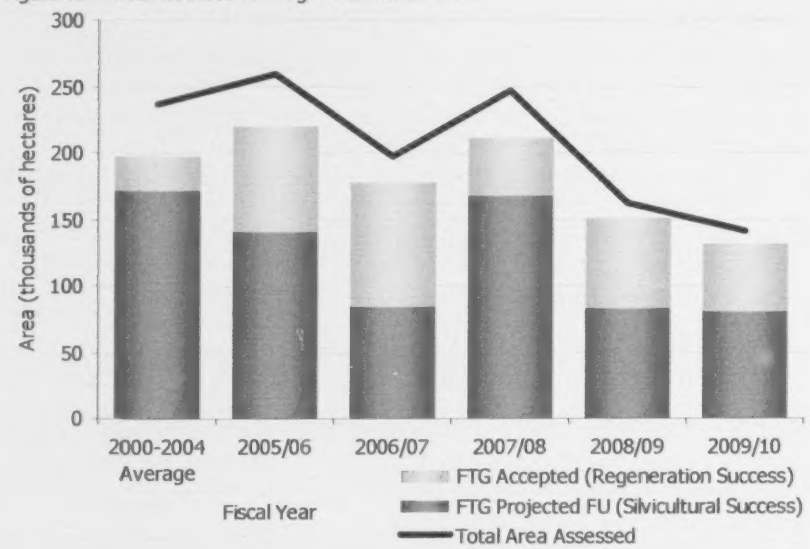
Key Facts

This section reports on forest renewal assessment or silvicultural effectiveness monitoring. An assessment of regeneration success is a requirement of the renewal process. The assessment refers to Free-To-Grow (FTG) as an indication that the regeneration effort has been declared a success.

Summary of Silvicultural Effectiveness Monitoring - 2009/10

- Area assessed for FTG in 2009/10 was lower than the long-term average (Figure 5a);
- Regeneration success reported was higher than the approximated five - year average (Figure 5a); and
- Silviculture success was in line with the five - year average (Figure 5a). Some of the assessed areas not achieving FTG status could be retreated in the future to achieve a silvicultural success.

Figure 5a - Area Assessed for Regeneration Success



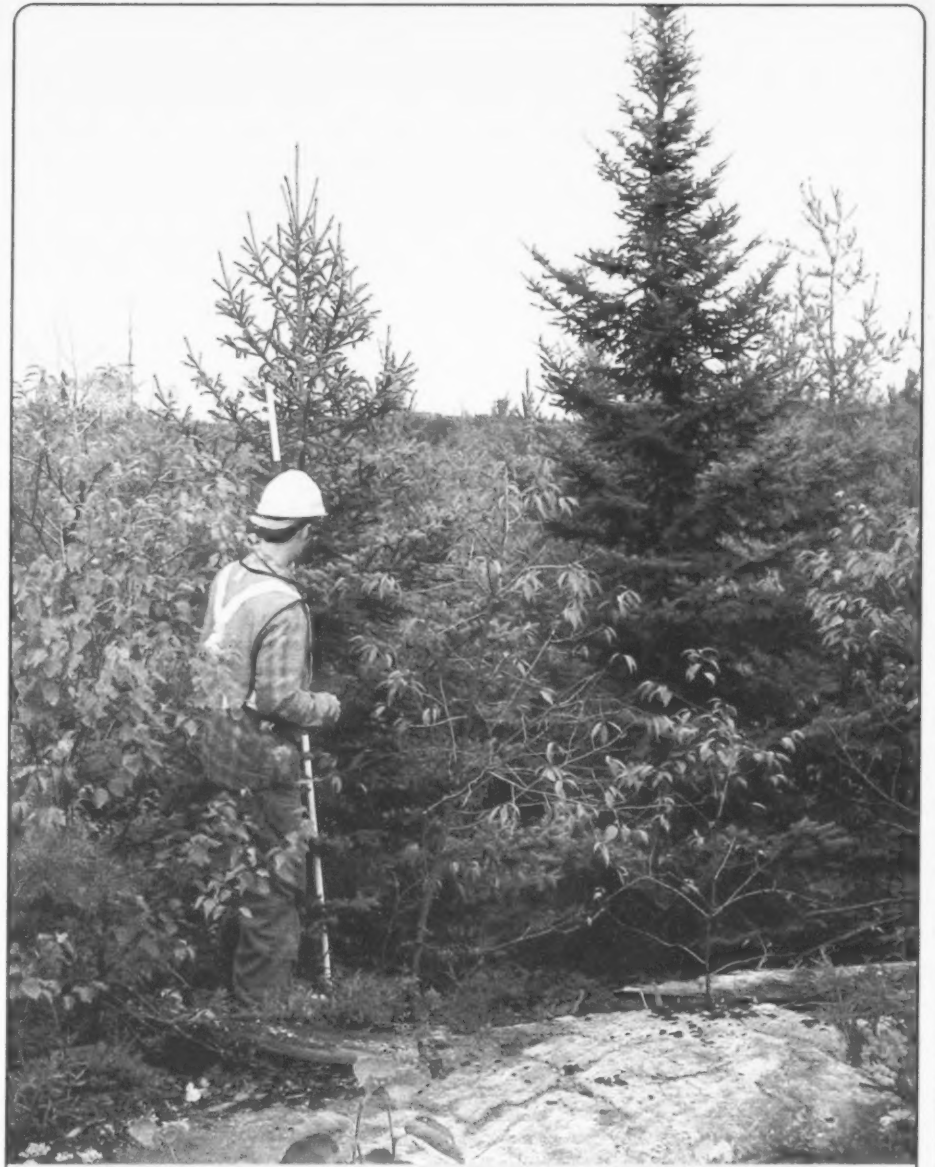
Background

Harvest and renewal activities are reported annually for the year they are implemented. Determination of the success of these activities in regenerating the forest occurs by specific assessment methods, conducted a number of years (usually 5-15) after regeneration treatments are completed.

Free-To-Grow assessments are an effectiveness monitoring tool that provides an indication of the success of silvicultural treatments, and are used to project the future forest condition. These assessments involve a variety of techniques, including field measurement of trees on sample areas of the forest, aerial surveys, and remote sensing. Some forest managers conduct these surveys annually, while others accumulate larger blocks that they assess once every few years. The Forest Renewal Trust Fund provides funding for these surveys on all management units.

In the forest management planning process, silvicultural ground rules are developed for all forest units. Prescriptions outlined in the ground rules identify silvicultural treatment packages intended to result in a prescribed future forest unit, and also identify other future forest units that will be accepted should the prescribed result not occur. Where an assessment determines regeneration standards have been met that are associated with the prescribed future forest unit the result is deemed a silvicultural success; whereas if the regeneration standard met is associated with an acceptable future forest unit the result is deemed to be a regeneration success.

Regenerating areas documented in this provincial annual report were harvested and treated a number of years ago (typically 5-15 years). However, in response to independent forest audit recommendations and inventory updating processes, a number of management units are continuing to assess backlog areas which may be considerably older (e.g., 30 years and older). These older areas are not representative of current practices. Those areas treated prior to April 1, 1994 occurred before the implementation of the CFSA and the associated Forest Renewal Trust and Forestry Futures Trust Funds.

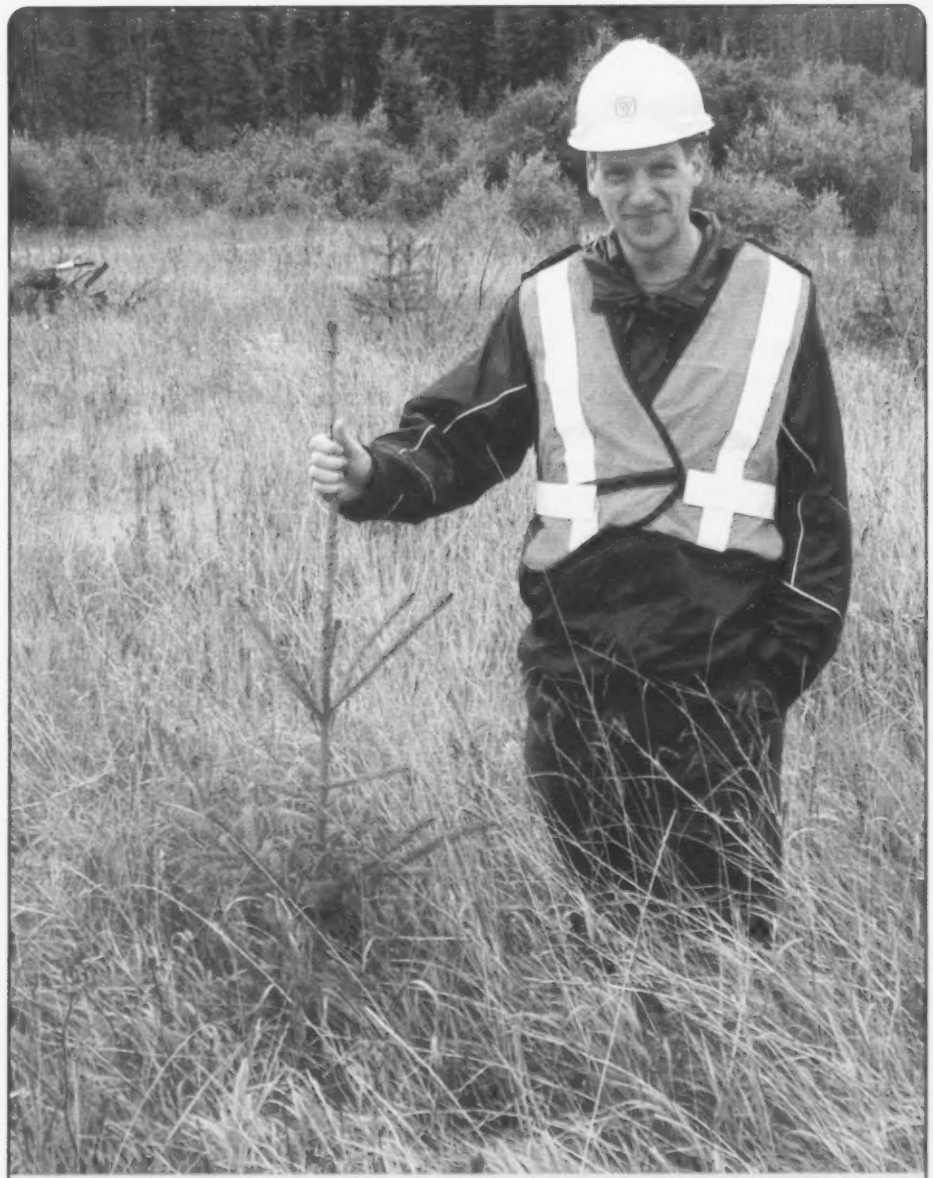


Silvicultural Assessment

Forest Renewal Assessment

The Forestry Futures Trust and the Forest Renewal Trust provide the funding for forest managers to ensure that harvested areas receive the necessary treatments to achieve successful renewal. Forest managers may also apply for funding from the Forestry Futures Trust Fund to treat naturally depleted areas (e.g., areas depleted from forest fires).

All harvested areas must be renewed successfully to a FTG standard. Some of the areas not meeting FTG standard at this time may require re-treatment, and other areas may require tending (e.g., to suppress undesirable competing vegetation such as brush and grass). Other areas simply require more time to allow for the incremental growth necessary to meet the height standard for FTG. Renewal success rates should continue to improve in future reports because of these legislative and funding changes.



Silvicultural Assessment

Data

Table 5a - Area Assessed for Regeneration Success

Area in hectares

FTG Measure	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Total Area Assessed	236,225	259,721	196,629	246,756	162,083	140,511
FTG Projected FU (Silvicultural Success)	172,220	141,094	84,547	167,833	82,903	80,385
FTG Accepted (Regeneration Success)	24,382	78,748	93,077	44,097	67,885	50,990
FTG Total	196,603	219,842	177,625	211,930	150,788	131,375
% Silvicultural Success	72.9%	54.3%	43.0%	68.0%	51.1%	57.2%
% Regeneration (including silvicultural success)	83.2%	84.6%	90.3%	85.9%	93.0%	93.5%

Percentages for Regeneration and Silviculture Success are compared to total area assessed for that year. On a province wide basis, the percentage of assessed area that was declared FTG to a prescribed standard is referred to as a "silvicultural success". The percentage of areas that are approved by an acceptable alternative standard is refered to as a "regeneration success".

FU= Forest Unit, MU= Management Unit

Table 5b - Area Assessed for Regeneration Success by Management Unit

Area in hectares

MU Name	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Algoma Forest	3,974	3,374	730	2,988	-	2,270
Algonquin Park Forest	7,085	4,316	7,854	5,476	6,779	3,424
Armstrong Forest	1,371	11,281	3,759	2,570	-	-
Bancroft-Minden Forest	1,695	1,631	1,045	2,254	1,803	2,754
Big Pic Forest	9,022	6,607	16,439	-	-	-
Black River Forest	2,214	-	806	-	-	-
Black Sturgeon Forest	6,849	16,178	2,238	4,786	1,825	8,672
Caribou Forest	3,254	5,978	3,547	3,673	2,868	3,543
Cochrane-Moose River Forest	5,537	18,698	446	454	5,191	-
Crossroute Forest	9,113	6,485	732	950	9,085	11,901
Dog River - Matawin Forest	11,513	11,157	8,278	5,411	5,816	6,724
Dryden Forest	862	-	1,488	844	1,029	1,957
English River Forest	9,755	12,884	7,948	12,847	4,813	8,043
French-Severn Forest	5,407	2,711	4,639	2,377	1,579	2,690
Gordon Cosens Forest	13,502	21,198	15,855	16,437	18,495	25,670
Hearst Forest	8,179	5,576	-	-	7,935	-
Iroquois Falls Forest	6,619	8,905	5,987	4,987	-	-
Kenogami Forest	22,465	13,516	21,963	10,356	7,756	1,201
Kenora	1,019	-	-	19,212	1,837	-
Lac Seul Forest	3,787	-	-	14,381	6,634	-
Lake Nipigon Forest	1,150	-	4,176	1,967	-	-
Lakehead Forest	1,666	4,783	9,890	-	2,282	1,722
Magpie Forest	1,093	9,598	6,059	4,843	2,719	3,715
Martel Forest	7,012	15,147	8,499	10,008	13,635	11,659
Mazinaw-Lanark Forest	652	-	1,014	918	2,003	1,400

Table 5b - Area Assessed for Regeneration Success by Management Unit (continued) *Area in hectares*

MU Name	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Nagagami Forest	3,033	4,167	6,809	2,573	5,366	4,142
Nighthawk Forest	3,825	5,821	2,338	25	1,857	-
Nipissing Forest	1,549	3,369	1,564	-	1,875	-
Northshore Forest	5,685	5,894	2,517	4,105	2,768	4,767
Ogoki Forest	7,725	269	-	-	-	-
Ottawa Valley Forest	3,360	862	607	1,061	2,429	1,230
Pic River Ojibway	-	5,000	2,185	-	-	-
Pineland Forest	4,919	7,912	-	4,039	2,110	3,715
Red Lake Forest	-	8,984	-	-	-	-
Romeo Malette Forest	3,162	5,163	6,224	1,382	-	4,622
Sapawe Forest	2,835	890	3,714	636	-	2,153
Smooth Rock Falls	9,800	1,463	2,499	2,547	-	-
Spanish Forest	6,616	11,664	7,441	7,531	6,389	6,481
Spruce River Forest	4,773	2,327	6,387	-	8,009	5,970
Sudbury Forest	2,469	-	676	3,080	2,994	-
Temagami	3,189	223	125	125	-	-
Timiskaming Forest	12,075	5,456	6,450	15,042	5,737	8,375
Trout Lake Forest	1,931	1,413	-	-	13,067	-
Wabigoon Forest	2,537	-	-	3,837	-	3,864
Whiskey Jack Forest	6,885	1,987	6,052	92,245	5,397	-
White River Forest	5,063	6,835	7,646	-	-	-

Key Facts

This section reports on the state of the forest industry in Ontario. Ontario's forests supply the basic resources for a variety of products including lumber, structural board, pulp, paper, and newsprint.

Summary of Forest Industry Revenues - 2009/10

- Over the past 10 years, the Ontario forest industry's overall competitiveness has declined. A rise in the value of the Canadian dollar, which increases the cost base in U.S. dollar terms for Canadian companies, has had the most negative influence on competitiveness. While the Canadian dollar weakened somewhat in 2009, averaging only 88 cents U.S. (down from 94 cents U.S. in 2008), the low level of U.S. housing starts and the generally poor economic climate in the U.S. resulted in another difficult year for the forest products industry;

Figure 6a - Ontario Forest Product Sector Sales (Value of Shipments)

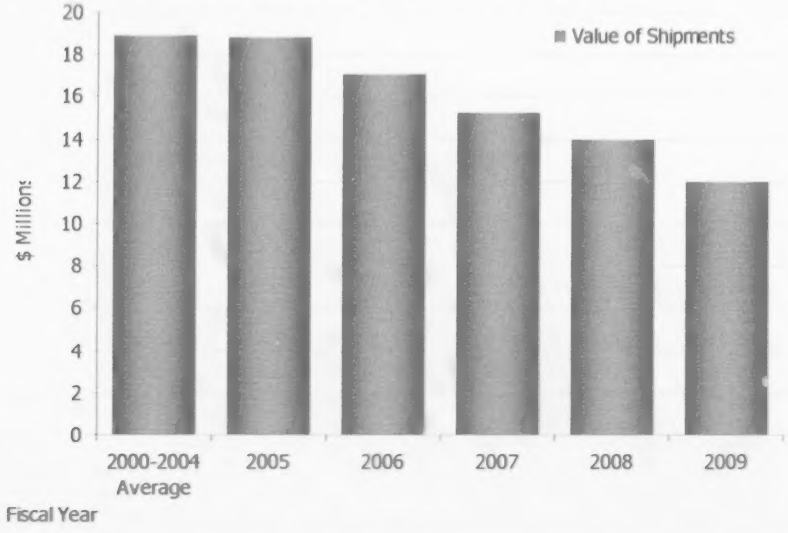


Table 6a - Distribution of Manufacturing Activities by Sector and Employment in 2009/10

Sector	Wood Product Mfg.	Paper Mfg.	Total
Number of Establishments			
Number	1,619	427	2,046
% of Canadian Total	28%	45%	
Number of Employees			
Number	15,973	20,978	36,951
% of Canadian Total	19%	36%	
Manufactured Value Added			
Value Added (million $)	$ 1,178	$ 2,844	4,022
% of Canadian Total	17%	31%	

Source: Statistics Canada

Employment figures are taken from the Annual Survey of Manufacturers issued by Statistics Canada

- Revenue from sales from Ontario's forest product sector continued its steady decline reaching just over $12 billion in 2009, down from $14 billion in 2008 (Figure 6a); and
- Value-added manufacturing, excluding logging, declined to $4.0 billion in 2009 from $4.6 billion in 2008 (Table 6a).

Summary of Forest Industry Re-investment - 2009/10

- Capital and repair expenditures continue to decline. The forest industry spent $662 million in capital and repair expenditures in 2009. This is down from $907 million spent in 2008, and dramatically lower than 2000 when the forest industry re-invested over $1.5 billion in facility (mill) repairs and new equipment (Figure 6b).

Summary of Forest Industry Employment – 2009/10

- Statistics Canada's Annual Survey of Manufacturers estimated employment in the broader forest industry at 148,000 jobs in 2009 (estimates include direct, indirect and induced employment) down from 166,000 in 2008; and
- The primary forest industry continued to experience a large number of layoffs and mill closures. There were 1,767 mill employees who lost their jobs in 2009 on either a permanent or indefinite basis compared to 1,126 job losses in 2008.

Summary of the Harvest Licence System – 2009/10

- The total number of licences issued in 2009 was 4,086, most of which were overlapping Forest Resource Licences (FRLs) (Table 6b).

Figure 6b - Forest Industry Capital and Repair Expenditures

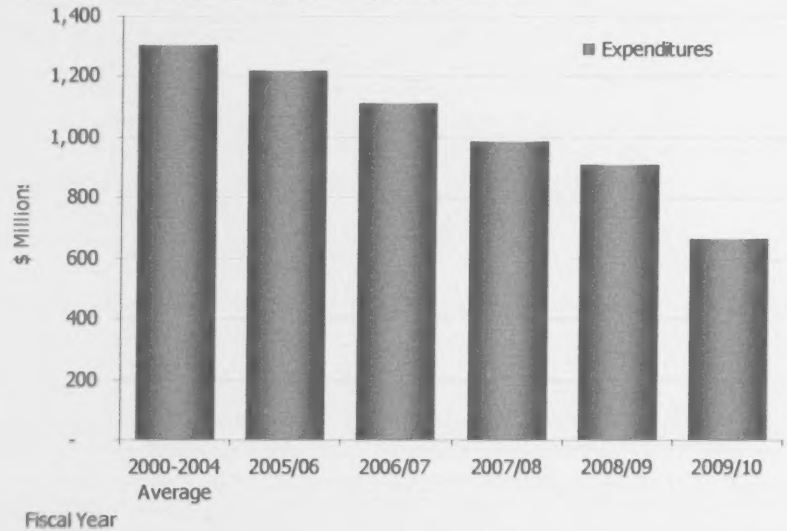


Table 6b - Number of Active Licences in 2009/10 by Licence Type

Licence Type	Overlapping	Not Overlapping	Total
Sustainable Forest Licence	0	49	50
FRL less than 300 hectares	3,881	155	4,036
FRL greater than 300 hectares	0	0	0
Salvage	0	0	0
Total	3,881	204	4,086

Summary of Ontario's Stumpage System – 2009/10

- The minimum stumpage charge ranged from $0.59 to $4.55 per cubic metre (Table 6c);
- In the 2009, the MNR redirected $2.50 per cubic metre from the minimum component of the stumpage price into the Forestry Futures Trust to raise a minimum of $10 million to fund Forest Resource Inventory (FRI) work. Monies raised for this purpose were deposited into the FRI account. The $2.50 was then added back to the minimum rate, restoring it to $4.55 per cubic metre; and
- Figure 6c lists the payments by the forest industry to the various government accounts.

Summary of the Northern Pulp and Paper Electricity Transition Program (NPPETP) – 2009/10

- Ontario's 2009 Budget extended the NPPETP by an additional year, allowing it to run until the end of September 2010. Electricity rebates were also increased to 1.8 cents per kilowatt hour for the fourth year of the program; and
- During 2009, $25 million in electricity rate relief was provided to mills participating in this program.

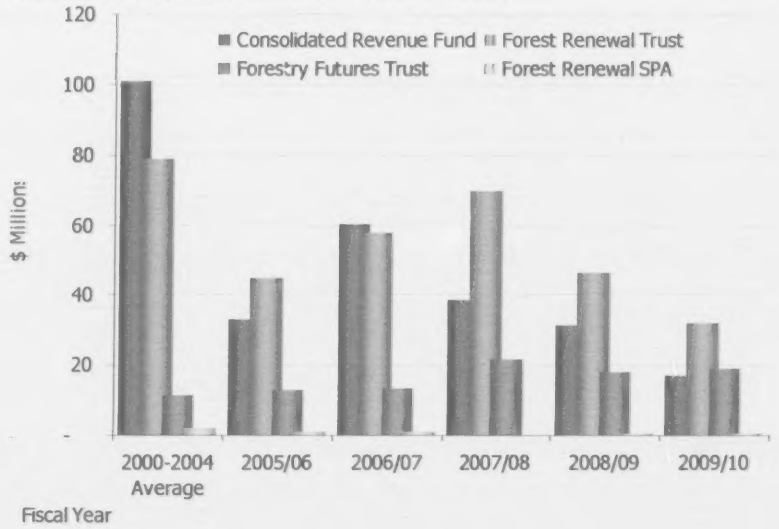
Table 6c - Minimum Stumpage Charge per cubic metre

Fiscal Year	Minimum Charge
2005/06	$1.36*
2006/07	$3.34
2007/08	$0.59 - $3.80**
2008/09	$0.59 - $3.92
2009/10	$0.59 - $4.55

** In 2005, a retroactive stumpage adjustment in the amount of $70,000,000 was made for all wood invoiced in 2005/2006 fiscal year. This adjustment accounts for the lower minimum charge value for wood harvested during the 2005/2006 period*

*** In 2007/08 the MNR reduced the minimum charge to $0.59 for certain unutilized species in an effort to increase their harvest levels and use as a fibre source. This minimum charge was still in effect in 2009.*

Figure 6c - Crown Charge Payments by the Forest Industry



Summary of the Ontario Wood Promotions Program (OWPP) – 2009/10

The Ontario Wood Promotions Program is a $1 million a year program that supports the development of capacity and markets for the value-added forest product industry in Ontario. OWPP met its goals for 2009 by strategically investing in a range of measures:

- The program provided continuing assistance to four research and training facilities to expand and enhance programs to train the next generation of wood workers. In addition, a student wood design competition to excite and entice students to enter the field was funded;
- The program supported three organizations in their efforts to advance the value-added wood industry: Northern Ontario Value-Added initiative (NOVA), which promotes and assists entrepreneurs in their efforts to identify and establish new value-added opportunities; the Ontario Wood Products Export Association which provides market intelligence and represents its value-added members nationally and internationally; and the Canadian 2008/09 – 32 Wood Council's WoodWORKS! initiative, which promotes the use of wood in construction to expand markets for value-added wood products; and
- Funds were also provided to conduct a macro level study into the export potential of Ontario's forest product industry.

Hauling Logs on the Algoma Forest

Background

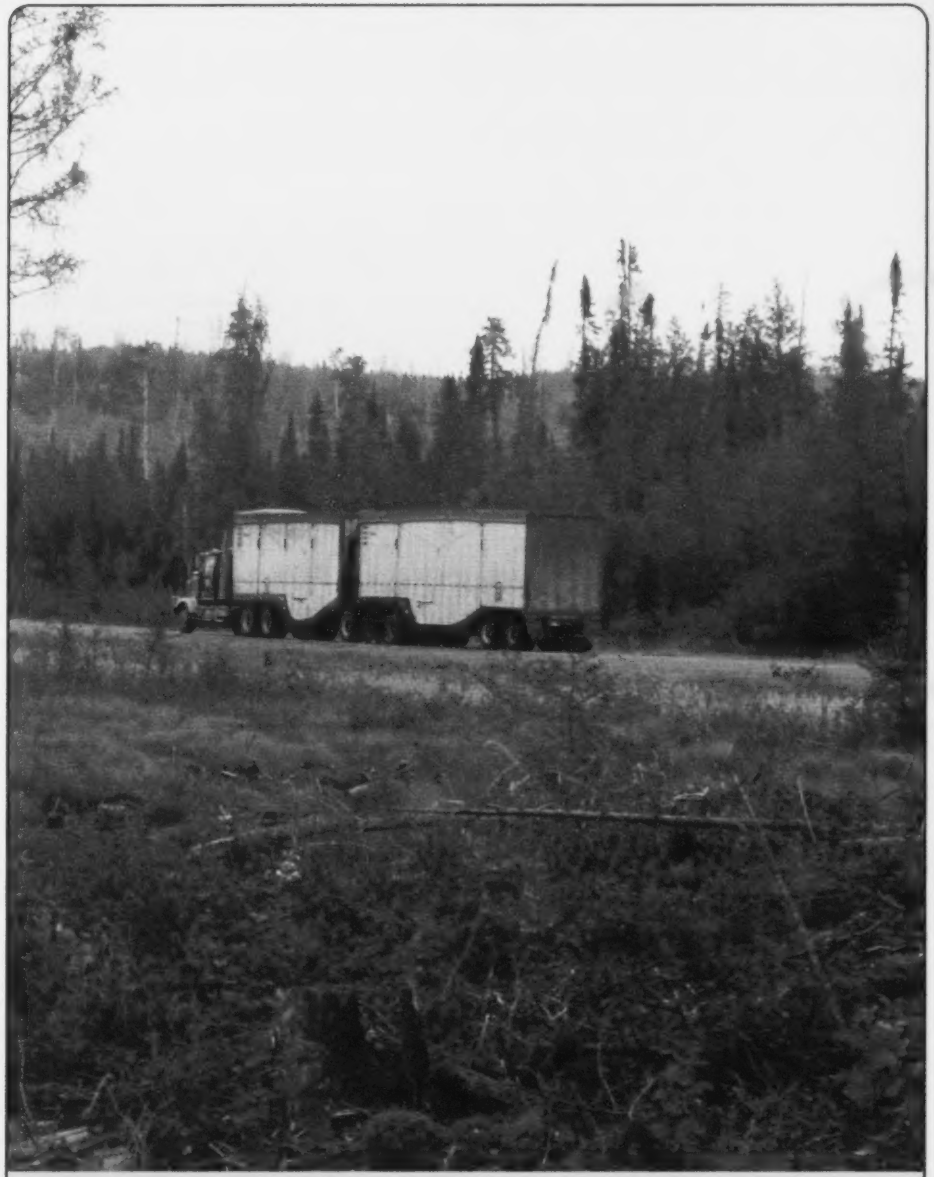
Ontario's forests supply industry with a variety of resources such as lumber, structural board, pulp, paper, and newsprint. Facilities that support forest activities and numerous service industries also depend on Crown forests.

The forest products industry is comprised of logging, wood products and paper manufacturing sectors, plus other related industries. The logging industry includes both large and small contractors, as well as large and small mill-owned operations. Contractors may work independently or directly for company-owned mills.

Wood product manufacturing industries include primary manufacturing businesses such as sawmills, veneer mills, and structural board plants producing both construction materials and specialty wood products from raw wood fibre (trees). The secondary or value-added wood product industry takes primary wood products such as lumber into various higher value wood products such as millwork (doors and windows), cabinetry, architectural woodwork, pre-fabricated housing, etc. In Ontario, approximately 56% of forest product revenue from wood product manufacturing is generated from the sale of value-added wood products.

The paper industry is also involved in primary and secondary or value-added manufacturing. Primary pulp mills produce pulp for sale to paper manufacturers in Ontario and throughout the world. Primary paper manufacturers produce products such as newsprint and various types of papers such as uncoated, coated, supercalender and construction paper. Primary mills also produce linerboard and corrugated medium, which produce cardboard when combined.

Primary mills use one or a combination of, wood chips, logs and recycled paper as their primary furnish. Secondary paper mills purchase either pulp or paper and add further value by turning out products such as book paper, labels, wrapping paper, various sanitary products, etc. In Ontario, nearly 58% of the revenue generated by the paper industries comes from the value-added secondary manufacturers.



Hauling Pulp Chips on the Black River Forest

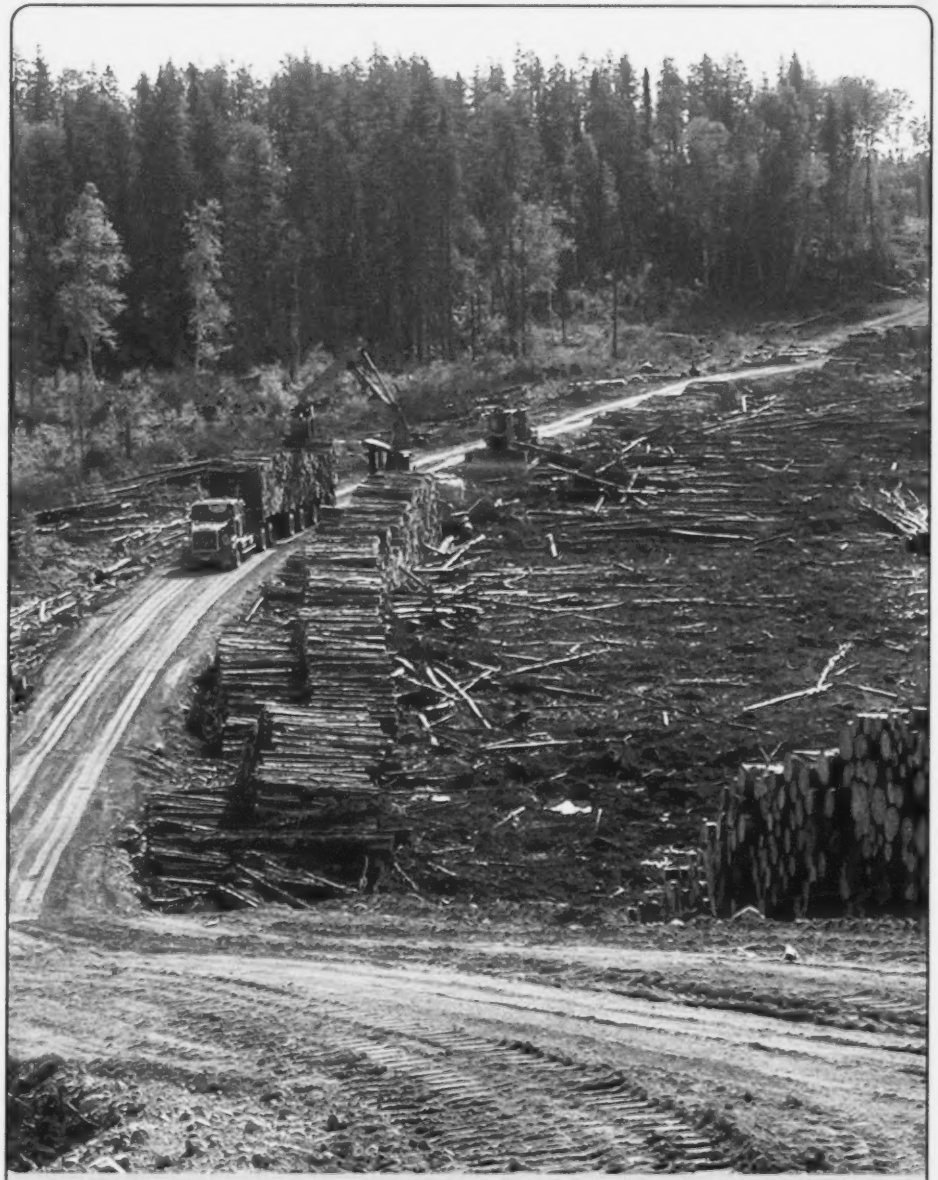
Harvest Licence System

Ontario's Crown forests are harvested by companies or individuals that hold one of two types of licences - Sustainable Forest Licences or Forest Resource Licences. Among other requirements, a SFL requires the licensee to prepare forest management plans following the direction of the Forest Management Planning Manual for Ontario's Crown Forests. The licensee is responsible for implementing forest management plans by carrying out access, harvest, renewal and maintenance activities. The SFL holder must follow the rules and guidelines set by the MNR to ensure sustainable forest management.

FRL holders follow forest management plans approved by the MNR and must operate to ensure the long-term health of the forest. Issuance of FRLs on lands under a SFL require an overlapping agreement since all forest resources on SFL lands have previously been licensed to the holder of the SFL. An overlapping agreement normally contains terms and conditions that companies require to conduct day to day business. The agreements also contain legal requirements that must be complied with. This licence type is commonly referred to as an overlapping FRL.

Ontario's Stumpage System

The Government of Ontario receives direct payments from the forest industry in the form of stumpage fees and indirect revenue from taxes. Forest companies pay a stumpage fee to the Crown for every cubic metre of timber harvested. A market-based pricing system is used by the MNR to calculate the stumpage fees that companies and individuals pay for harvesting timber from Crown land. In times of strong market prices for forest products, the stumpage system triggers higher fees. In poor markets, harvesters pay lower fees. The Crown's stumpage fees are comprised of three separate charges:



Loading Logging Trucks on the Lac Seul Forest

1. The price charged pursuant to section 31 of the CFSA consists of two components:
    - A minimum charge per cubic metre of harvested timber, depending on the species, quality and usage (for instance, pulp versus veneer) of the wood. This charge, which is adjusted annually, provides a minimum royalty to the province for the use of Crown wood;
    - A residual value component which is an amount that varies depending on the market price of wood products. This amount supplements the minimum royalty to the province for the use of Crown wood.
2. A forest renewal charge levied pursuant to subsection 49 (1) of the CFSA to provide funding for forest regeneration. This charge varies depending on the tree species and the anticipated forest renewal cost.
3. A Forestry Futures charge levied pursuant to ss.51 (5) of the Act. It is applied at $0.48 per cubic metre of timber harvested. (See Forest Renewal section).

Northern Pulp and Paper Electricity Transition Program (NPPETP)

The $140 million NPPETP was announced in November 2006 to assist forest sector companies who were hit hard by rising electricity costs. This three-year program offered electricity rate relief to pulp and/or paper companies in Northern Ontario that use over 50,000 megawatt hours per year.

Participating companies were required to prepare and implement an electricity transition plan designed to decrease electricity costs by a minimum of 15% per unit of production within the three-year term of the program thereby improving their long-term cost competitiveness and viability.

Lumber Yard

Provincial Wood Supply Competitive Process (WSCP)

In January 2009, Ontario initiated the first stage of the WSCP. This first stage of the competition was a request for expressions of interest to help the Minister determine whether or not to move forward with the provincial wood supply competitive process.

Ontario launched the second stage: Provincial Wood Supply Competitive Process on November 26, 2009 with the goal to attract new investment in the forest sector, support new and innovative ventures to stimulate Ontario's economy and build an industry of top performers – both existing and new. The second stage was open to any proponent interested in using Crown wood supply and investing in Ontario, including existing forest companies interested in expanding their wood supply and/or exploring new markets and business opportunities. As well, forest companies with facilities currently idle were welcome to participate to confirm and demonstrate their commitment to re-open and resume use of wood supplies.

The ministry received 115 submissions by the March 31, 2010 closure deadline. Submissions will be evaluated against pre-established criteria such as financing, economic viability, operating feasibility, wood supply, Aboriginal benefits, management experience, and social, economic and environmental benefits. Successful proposals will be announced in 2011.

Spruce and Fir Logs - Algoma Forest

Overview

Condition 34 of the Declaration Order regarding the MNR's Class Environmental Assessment Approval for Forest Management in Ontario requires district managers to conduct negotiations at the local level with Aboriginal peoples whose communities are situated in a management unit. These negotiations are to identify and implement ways of achieving a more equal participation by Aboriginal peoples in the benefits provided through the forest management planning process. The negotiations include but are not limited to the following matters:

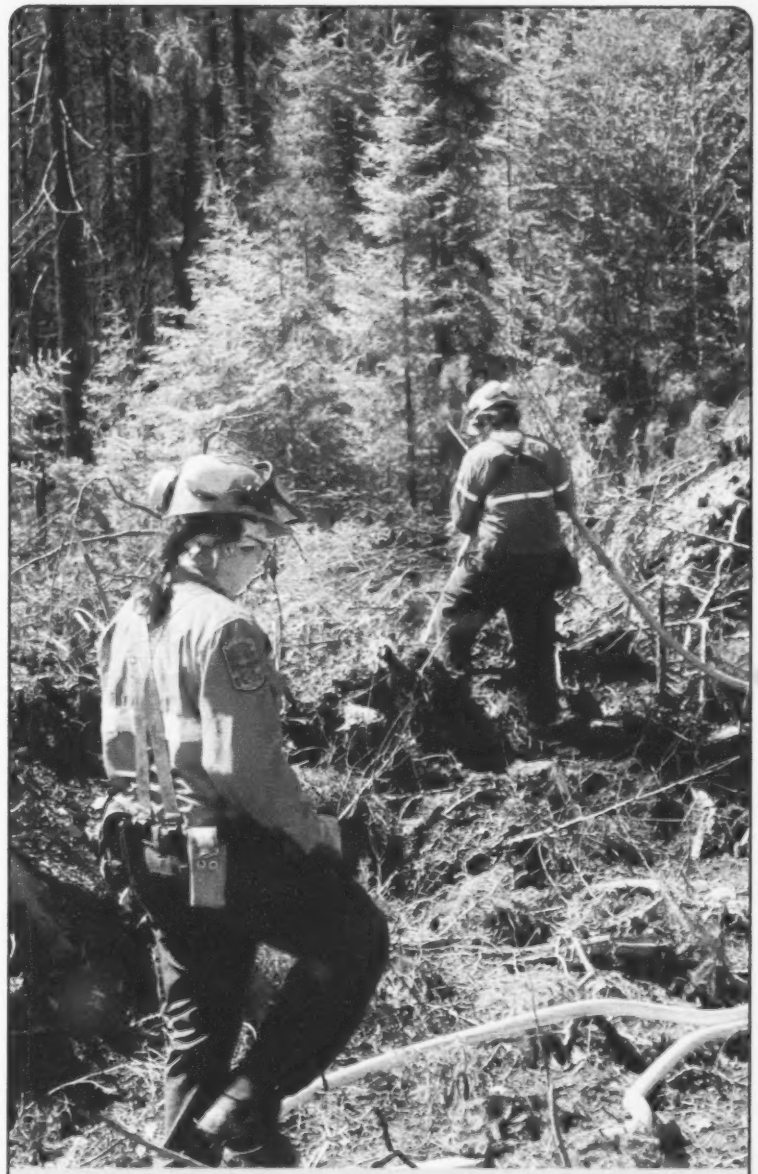
- Providing job opportunities and income associated with forest and mill operations in the vicinity of Aboriginal communities;
- Supplying wood fibre to wood processing facilities (such as sawmills) in Aboriginal communities;
- Facilitating Aboriginal third-party licence negotiations with existing licensees where opportunities exist;
- Providing forest resource licences to Aboriginal people where unallocated Crown timber exists close to reserves;
- Developing programs to provide jobs, training and income for Aboriginal people in forest management operations through joint projects with Indian and Northern Affairs Canada; and
- Identifying other forest resources that may be affected by forest management or which can be addressed in the forest management planning process.

In addition, this section also reports on some of the forums for Aboriginal community involvement in the forest management process. For the purposes of this section, use of the term "Aboriginal" will be used to include references to "First Nations" and "Native" as per the definition in the Canadian Constitution 35(2), unless quoted directly from a source or in the use of a proper name.

A list of the Aboriginal communities situated within each district, or having an interest in forest management units within a district, is summarized in Table 7a.

Table 7a - Summary of Aboriginal communities in each district within the AOU - 2009/10

District	Aboriginal Communities
Algonquin Park	Antoine Algonquins, Mattawa/North Bay Algonquins, Bonnechere Algonquin First Nation, Whitney Algonquins, Algonquins of Greater Golden Lake, Algonquins of Pikwakanagan First Nation (Golden Lake), Snimikobi (Ardoch) Algonquin First Nation, Algonquin Nation Kijicho Manito (Bancroft), Shabot Obaadjiwan First Nation
Bancroft, Kemptville & Peterborough	Whitney Algonquins, Snimikobi (Ardoch) Algonquin First Nation, Alderville First Nation, Curve Lake First Nation, Mohawks of the Bay of Quinte, Ojibways of Hiawatha First Nation, Algonquins of Pikwakanagan First Nation (Golden Lake), Shabot Obaadjiwan First Nation, Bonnechere Algonquin First Nation, Algonquins of Greater Golden Lake, Algonquin Nation Kijicho Manito (Bancroft), Chippewas of Rama Mnjikaning First Nation, Kawartha Nishnawbe First Nation
Chapleau	Brunswick House First Nation, Chapleau Cree First Nation, Chapleau Ojibwe First Nation, Mattagami First Nation, Michipicoten First Nation, Missanabie Cree First Nation, Flying Post First Nation, Mississauga #8 First Nation, Sagamok Anishnawbek First Nation, Serpent River First Nation
Cochrane	Moose Cree First Nation, Wahgoshig First Nation, Taykwa Tagamou Nation, Mattagami First Nation, Matachewan First Nation, Flying Post First Nation
Dryden	Aboriginal People of Wabigoon, Eagle Lake First Nation, Lac Des Mille Lacs First Nation, Lac Seul First Nation, Ojibway Nation of Saugeen, Wabauskang First Nation, Wabigoon Lake Ojibway Nation, Naotkamegwanning Anishinabe First Nation (Whitefish Bay), Grassy Narrows First Nation
Fort Frances	Big Grassy First Nation, Couchiching First Nation, Lac La Croix First Nation, Rainy River First Nation, Naicatchewenin First Nation, Seine River First Nation, Stanjikoming First Nation, Nigigoonsiminikaaning First Nation, Anishinaabeg of Naongashiing (Big Island), Naotkamegwanning Anishinabe (Whitefish Bay), Ojibways of Onigaming (Sabaskong), Lac Des Mille Lacs First Nation, Wabigoon Lake Ojibway Nation, Metis community



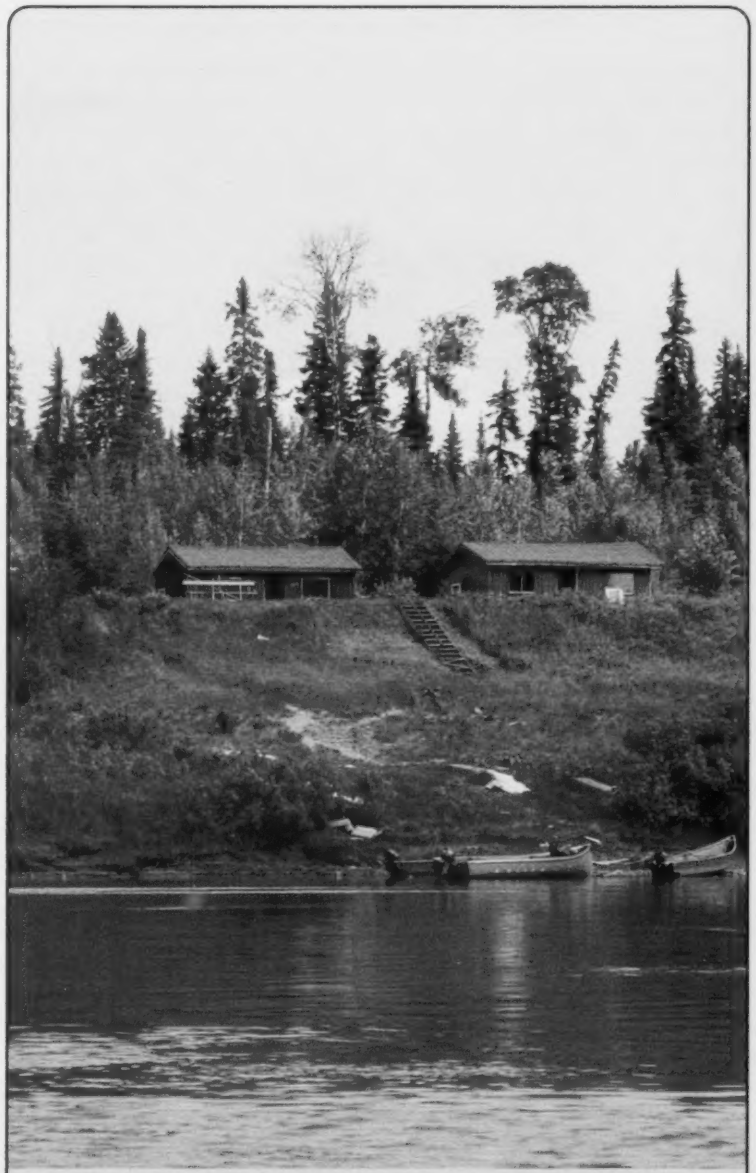
Fighting a Forest Fire

District	Aboriginal Communities
Hearst	Constance Lake First Nation, Hornepayne First Nation, Taykwa Tagamou Nation, Moose Cree First Nation, Brunswick House First Nation, Chapleau Cree First Nation, Mattagami First Nation, Missanabie Cree First Nation, Flying Post First Nation, Matachewan First Nation
Kenora	Big Grassy First Nation, Wabauskang First Nation, Grassy Narrows First Nation, Iskatewizaagegan No. 39 Independent First Nation, Wabaseemoong Independent Nations (Whitedog), Obashkaandagaang (Washagamis Bay), Ochiichagwe'Babigo'ining First Nation (Dalles), Wauzhushk Onigum First Nation (Rat Portage), Shoal Lake No. 40 First Nation, Northwest Angle No. 33 First Nation, Northwest Angle No. 37 First Nation, Anishinaabeg of Naongashiing (Big Island), Ojibways of Onigaming (Sabaskong), Naotkamegwanning Anishinabe (Whitefish Bay)
Kirkland Lake	Wahgoshig First Nation, Matachewan First Nation, Beaverhouse First Nation
Nipigon	Biinjitiwaabik Zaaging Anishinaabek First Nation (Rocky Bay), Kiashke Zaaging Anishinaabek First Nation (Gull Bay), Red Rock Indian Band, Bingwi Neyaashi Anishinaabek, Fort William First Nation, Whitesand First Nation, Namaygoosisagagun (Community of Collins), Animbiigoo Zaagi'igan Anishinaabek First Nation (Lake Nipigon Ojibway), Aroland First Nation, Long Lake #58 First Nation, Ginoogaming First Nation (Long Lac #77), Constance Lake First Nation, Pays Plat First Nation, Poplar Point First Nation, Eabametoong First Nation, Marten Falls First Nation, Ojibways of Pic River (Heron Bay), Pic Mobert First Nation
North Bay	Temagami First Nation, Nipissing First Nation, Dokis First Nation, Antoine Algonquins, Mattawa/North Bay Algonquins, Matachewan First Nation
Parry Sound	Wasauksing First Nation (Parry Island), Henvey Inlet First Nation, Shawanaga First Nation, Magnetawan First Nation, Dokis First Nation, Wahta Mohawks, Moose Deer Point First Nation
Pembroke	Algonquins of Pikwakanagan First Nation (Golden Lake), Bonnechere Algonquin First Nation, Antoine Algonquins, Mattawa/North Bay Algonquins, Algonquins of Greater Golden Lake, Snimikobi (Ardoch) Algonquin First Nation, Algonquin Nation Kijicho Manito (Bancroft), Shabot Obaadjiwan First Nation, Whitney Algonquins

Harvesting Canada Yew

District	Aboriginal Communities
Red Lake	Pikangikum First Nation, Lac Seul First Nation, Cat Lake First Nation, Wabauskang First Nation, Slate Falls First Nation, Grassy Narrows First Nation, First Nation people living off reserves in the communities of Red Lake and Ear Falls
Sault Ste. Marie	Serpent River First Nation, Ojibways of Garden River, Mississauga #8 First Nation, Thessalon First Nation, Ojibways of Batchewana, Métis Nation of Ontario
Sioux Lookout	Mishkeegogamang First Nation, Lac Seul First Nation, Cat Lake First Nation, Ojibway Nation of Saugeen, Slate Falls First Nation
Sudbury	Dokis First Nation, Henvey Inlet First Nation, Mattagami First Nation, Chapleau Ojibwe First Nation, Mississauga #8 First Nation, Sagamok Anishnawbek First Nation, Serpent River First Nation, Temagami First Nation, Wahnapitae First Nation, Whitefish Lake First Nation, Whitefish River First Nation, Wikwemikong Unceded Indian Reserve, Zhiibaahaasing First Nation, Sheguiandah First Nation, Aundek Omni Kaning First Nation (Ojibways of Sucker Creek), M'Chigeeng First Nation (West Bay), Sheshegwaning First Nation, Brunswick House First Nation
Thunder Bay	Whitesand First Nation, Namaygoosisagagun (Community of Collins), Lac Des Mille Lacs First Nation, Fort William First Nation, Kiashke Zaaging Anishinaabek First Nation (Gull Bay), Red Rock Indian Band, Métis Nation of Ontario
Timmins	Mattagami First Nation, Flying Post First Nation, Matachewan First Nation, Moose Cree First Nation, Taykwa Tagamou Nation, Wahgoshig First Nation, Beaverhouse Aboriginal Community, Wahnapitae First Nation, Sagamok Anishnawbek First Nation, Whitefish Lake First Nation, Temagami First Nation, Temiskaming First Nation
Wawa	Ojibways of Pic River (Heron Bay), Pic Mobert First Nation, Homepayne First Nation, Michipicoten First Nation, Missanabie Cree First Nation, Pays Plat First Nation, Long Lake #58 First Nation, Ginoogaming First Nation (Long Lac #77), Constance Lake First Nation

Source: Condition 34 District Reports



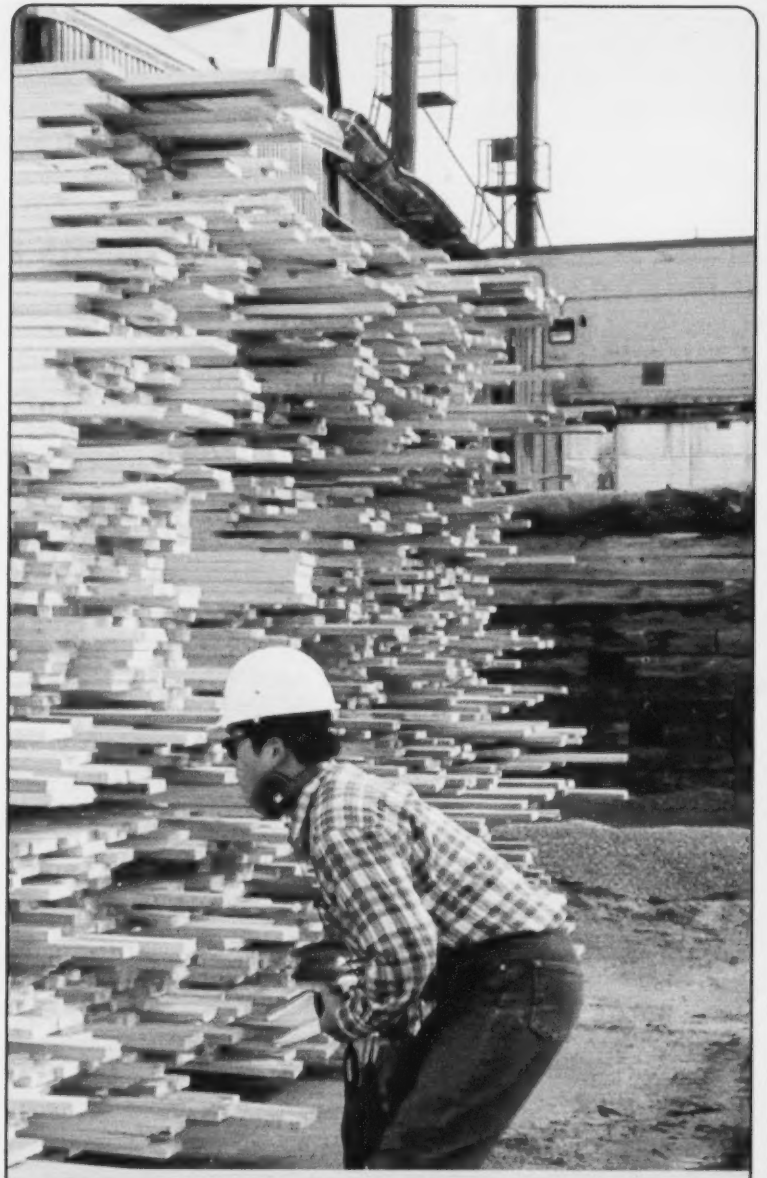
Camp on the Albany River

Implementation of Condition 34

The scope of Condition 34 is broad, and its application and implementation are determined at the local level. The arrangements and agreements put into effect by MNR district managers and Aboriginal communities take different forms. Arrangements attempt to accommodate the unique needs, capacities, and situations of individual Aboriginal communities in the context of available opportunities.

In its decision, the Environmental Assessment (EA) Board ordered the MNR to build upon initiatives already underway, and to provide new opportunities for Aboriginal communities to benefit from forest management activities in their local areas. In endeavouring to develop opportunities for Aboriginal communities to benefit, MNR proceeds to implement Condition 34 in a manner consistent with the CFSA. The statute provides legislative authority to the MNR, as well as a framework for the sustainable management and use of forest resources. The CFSA has enabled the MNR to put mechanisms in place that may assist in facilitating the implementation of Condition 34.

While responsibility for implementation of Condition 34 rests with the MNR, the EA Board recognized that the involvement of other parties is critical to successful implementation. Such involvement would include participation of Aboriginal communities, the forest industry, and other government bodies (e.g., Ontario ministries, Indian and Northern Affairs Canada, and Natural Resources Canada). Aboriginal communities may be individually involved in implementation of Condition 34, or as members of groups of communities with common interests situated in a common geographic area.



Lumber Mill

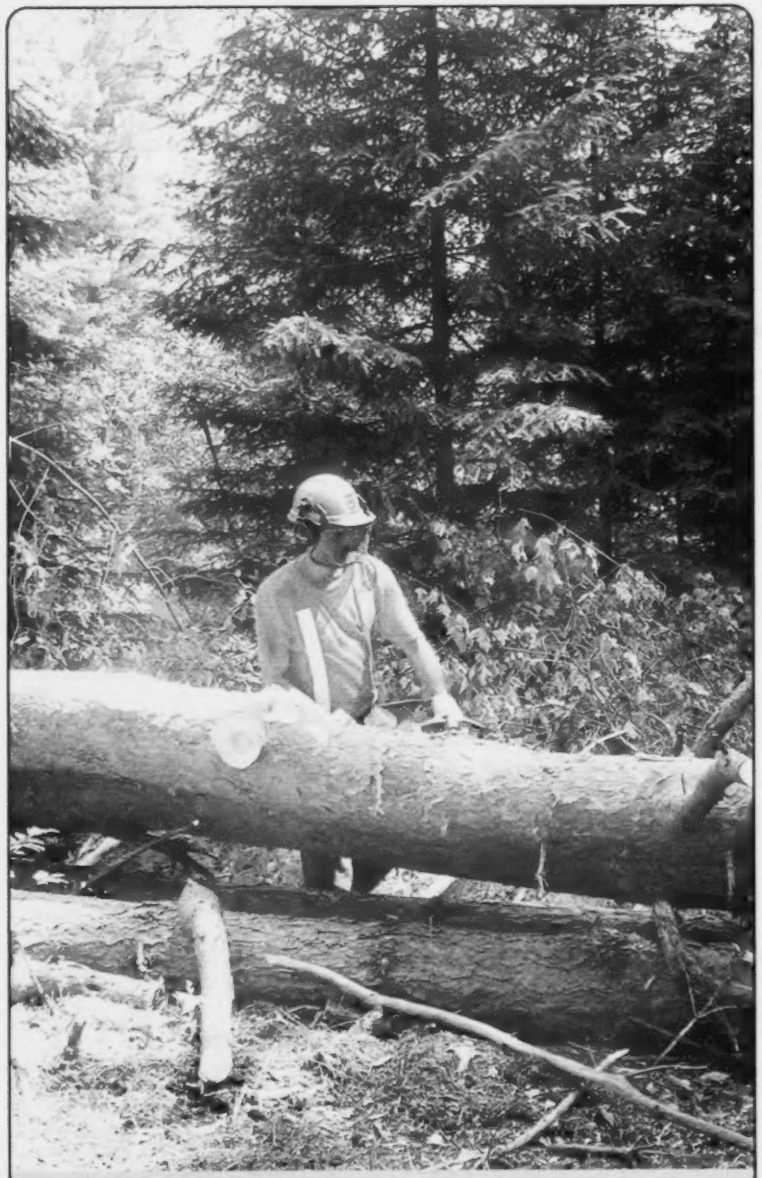
District Progress

MNR is required to report a summary of the progress of ongoing negotiations with Aboriginal peoples on a district-by-district basis. Of the 26 MNR districts, four are outside the AOU including Aylmer, Aurora, Cambridge, and Midhurst. Peterborough and Kemptville districts are only partially included in the AOU. Accordingly, the reporting of Bancroft in this chapter will include parts of Peterborough and Kemptville districts located in the Mazinaw-Lanark Forest.

Highlights of benefits to Aboriginal communities through participation in forest management and economic development activities is summarized under three categories: access to resources, silvicultural opportunities, and training and development. Information for this summary is from district-submitted Condition 34 reports.

Access to Resources

Aboriginal people are often in a position to operate as forest harvesters. Although Ontario's wood supply is almost completely allocated to SFL holders, the MNR has helped the forest industry and Aboriginal communities negotiate access to resources through various mechanisms. For example, harvest opportunities are sometimes made available through overlapping licences issued to Aboriginal communities or community members. Table 7b summarizes resources made available to Aboriginal communities, as reported by each district. Readers should note that information in the table is strictly a summary of districts submissions and that additional opportunities may have occurred.

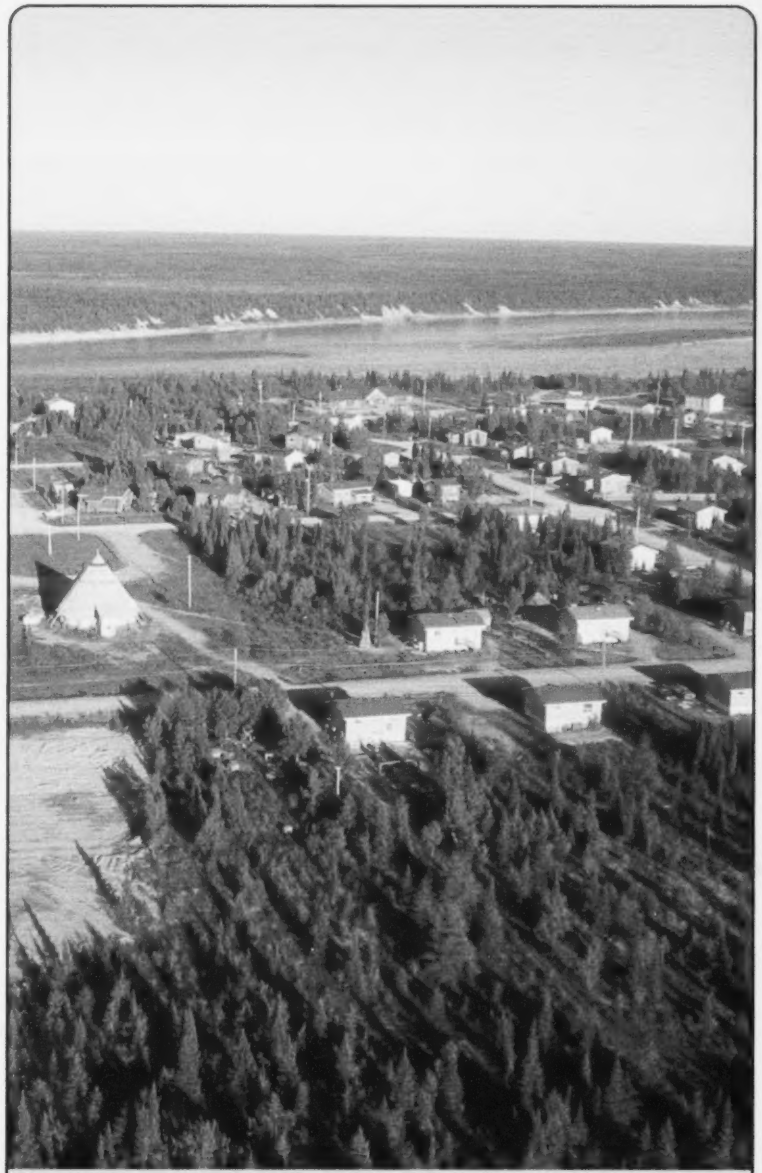


Forest Harvesting

Table 7b - Aboriginal access to resources - 2009/10

District	Tenure type	Estimated Total[1] Allocation (000 cubic metres)	# of Aboriginal Communities Affected
Algonquin Park	Contract	61.9	1
Chapleau	Conditional Commitment Letter	60.0	1
Cochrane	Contract, Licence	155.0	1
Dryden	Licence	126.5	3
Fort Frances	Contract, Licence	384.5	8
Hearst	Contract, Licence	70.0	3
Kenora	Licence	32.5	3
Kirkland Lake	Contract, Licence	88.9	2
Nipigon	Contract, Licence	757.6	8
North Bay	Licence	67.6	3
Parry Sound	Licence	n/a	1
Pembroke	Licence	12.5	1
Red Lake	Personal Fuelwood Licence	0.02	2
Sault Ste. Marie	Conditional Commitment Letter	20.0	2
Sioux Lookout	Allocation	n/a	1
Sudbury	Licence	309.0	3
Thunder Bay	Licence	380.2	4
Timmins	Licnece	42.7	1
Wawa	Contract, Licence	91.8	2

[1] The estimated total allocation and/or harvest volume was not provided for some Aboriginal communities.



Peawanuck First Nation

Silvicultural Opportunities

Forest renewal and tending includes growing nursery stock, planting, seeding, spacing, cleaning, thinning, and site preparation. Many Aboriginal peoples have experience in these silvicultural activities. District managers have sought specific agreements between the forest industry and Aboriginal communities for silvicultural contract work. Other key forest management activities, while not described as silviculture included in this section are road construction and maintenance, hauling and information gathering. These activities contribute to economic development programs. Table 7c summarizes opportunities to Aboriginal peoples during the 2009/10 fiscal year, as reported by each district.

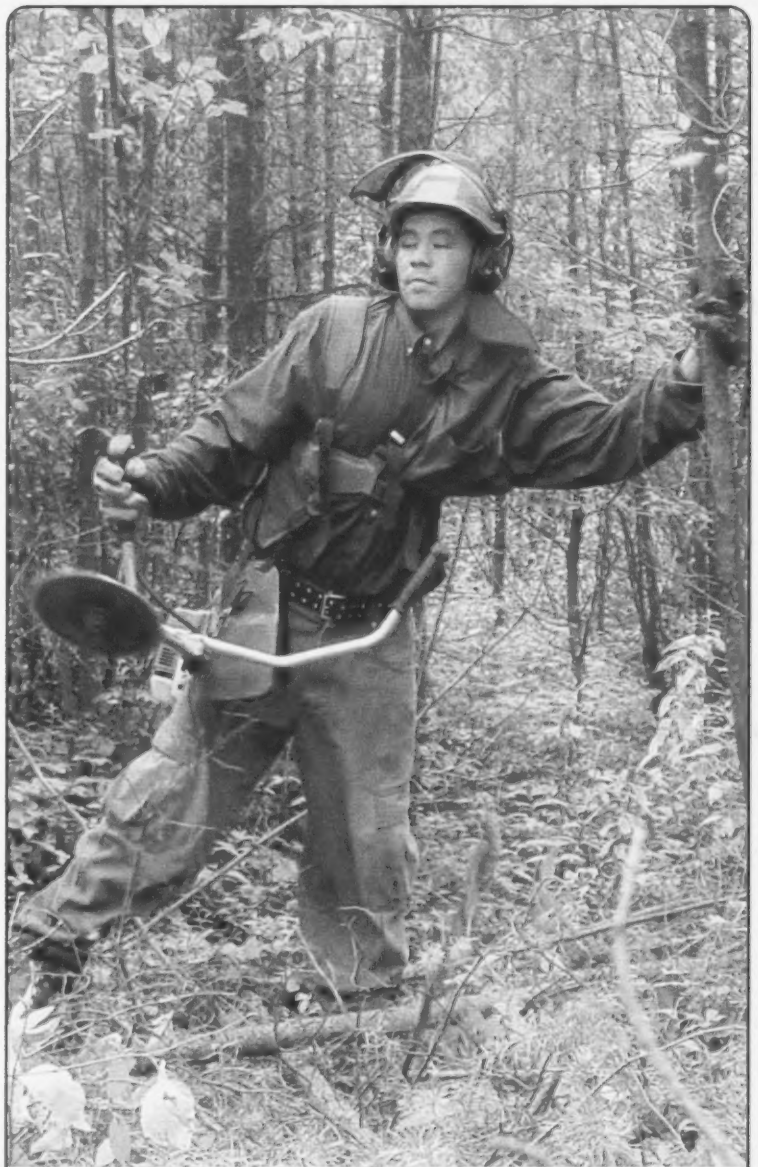
Table 7c - Aboriginal access to silvicultural contracts and other opportunities - 2009/10

District[1]	Estimated Value of Contracts / Opportunities (thousands $) Industry	MNR	Number of Communities Affected	Types of Activities
Algonquin Park	145	15	9	Tree marking, site preparation, road construction, data collection
Chapleau	n/a	17.0	1	Information gathering
Cochrane	464	n/a	3	Road construction and maintenance
Dryden	n/a	0.0	1	Producing seedlings and cleaning products
Fort Frances	842.5	n/a	6	Tree planting, access fee, forest management services, thinning, cone collection, road construction and maintenance, spacing, brushing, water crossing inspections, beaver control, bush grinding, biomass hauling
Hearst	10	n/a	1	Pre-commercial thinning and information gathering

Near Bow Lake First Nations

District[1]	Estimated Value of Contracts / Opportunities (thousands $) Industry	MNR	Number of Communities Affected	Types of Activities
Kirkland Lake	n/a	0.0	2	Tree planting and pre-commercial thinning
Nipigon	4.5	n/a	2	Tree planting
North Bay	188.0	0.0	1	Tree planting, manual tending, stand improvement
Parry Sound	n/a	n/a	0	n/a
Pembroke	0.0	5.0	1	Support for Earthwalker program
Red Lake	100	0.0	1	N/A
Sault Ste. Marie	n/a	n/a	1	Seedling production
Sioux Lookout	n/a	n/a	1	Road maintenance and construction.
Sudbury	156.4	n/a	3	Tending, seedling production, pre-commercial thinning
Thunder Bay	215.0	7.0	4+	Site preparation, road construction/maintenance, tending, tree planting
Wawa	n/a	n/a	3	Values information collection and recording,

[1]Information was not provided for Kenora District.

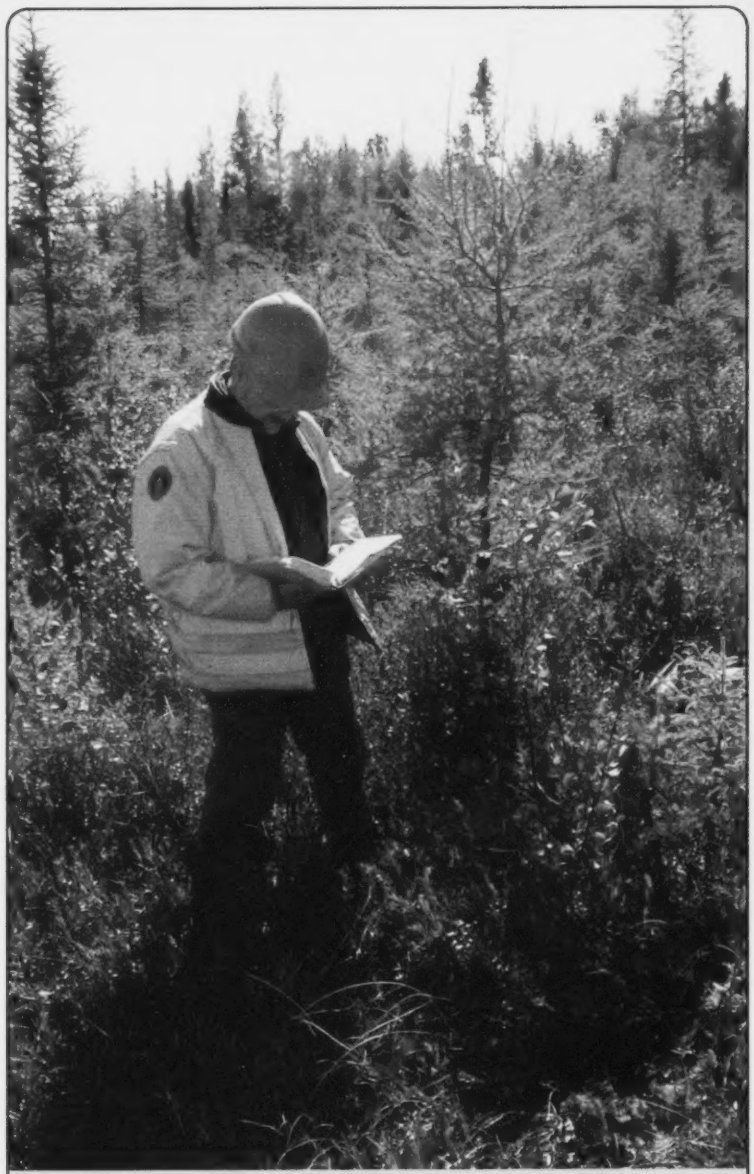


Thinning a Jack Pine Stand

Training and Employment

District managers have found ways to help co-ordinate existing federal and provincial programs to assist Aboriginal communities in preparing for increased participation in forest management activities.

In some districts, the forest industry provides the training strategy, recruitment and hiring support, and business opportunities for independent contractors. In some instances the MNR helps to foster Aboriginal training by providing funding, facilities or equipment. Sometimes districts provide direct training services, or leadership to training initiatives. The following summarizes training opportunities provided to Aboriginal communities by the MNR and the forest industry in accordance with the Condition 34 district reports. Relevant districts as are noted as appropriate.



Ecology Field Training

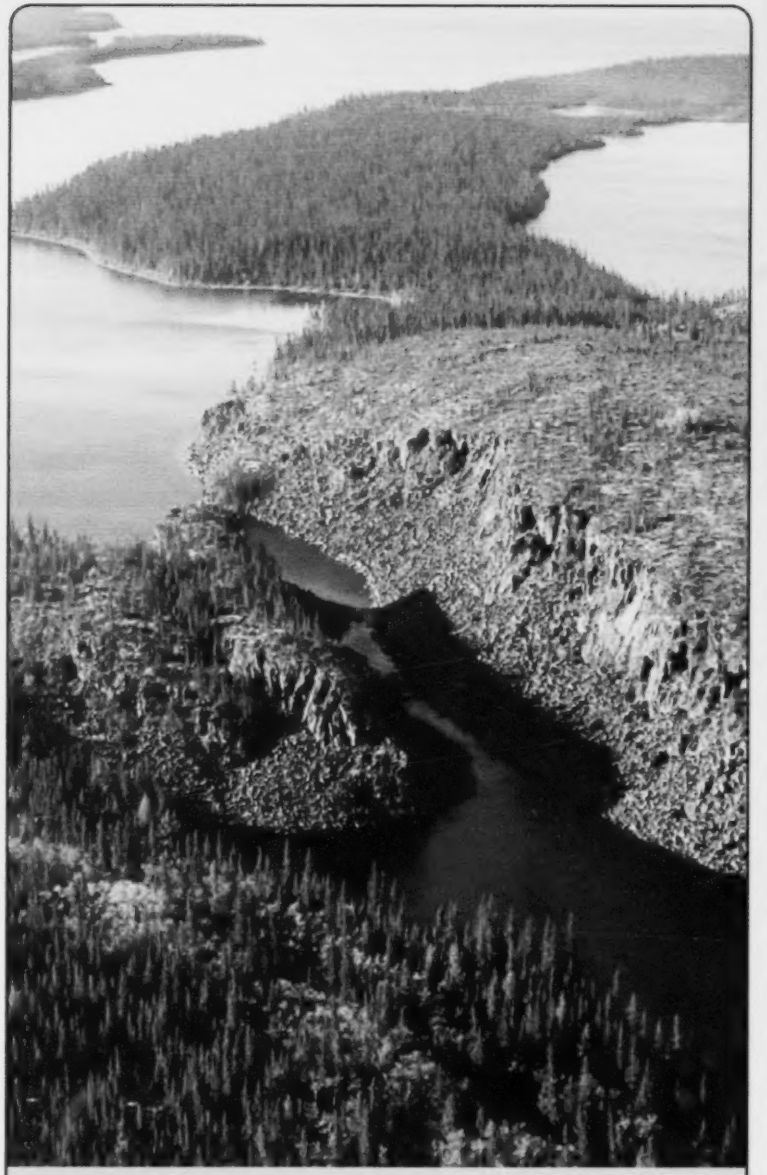
Summary of Training Initiatives - 2009/10

A range of forest-related training and development initiatives were provided for the benefit of Aboriginal people. Opportunities were presented in a few larger, comprehensive programs, as well as in a multitude of local and focused offerings. Both the MNR and the industry made significant support to training.

The MNR's Aboriginal Youth Work Exchange Program (AYWEP) and the First Nations Natural Resources Youth Employment Program are examples of larger, comprehensive training programs. Through the AYWEP, at least seven districts arranged (typically) eight-week summer employment for Aboriginal youth (Thunder Bay, Chapleau, Kirkland Lake, Cochrane, Dryden, Hearst and Sault Ste. Marie). AYWEP work placements focus on resource management projects, job skills readiness training and personal development training.

The First Nations Natural Resources Youth Employment Program (First Nations Ranger Program) is largely centered at Camp Firesteel, west of Upsala. The seven-week program employed 30 youth and three crew leaders in training from 16 First Nations communities in five districts (Cochrane, Dryden, Hearst, Nipigon and Sioux Lookout). On the Dog River- Matawin Forest, they conducted 19 hectares of juvenile spacing, planted 20,150 seedlings and 6,780 cerkon cones and conducted an aesthetics plant using large stock adjacent to Highway 17. The program is administered by Confederation College and has received support from MNR, other ministries and agencies (Canada, Ontario and Aboriginal organizations) as well as a number of industry partners.

Key industry partners such as AbitibiBowater, Domtar and Tembec are actively engaged in supporting training programs for youth and other groups. Industry members often have policies and agreements to document their ongoing commitment to youth training and education. Other examples of youth training include the MNR and industry supported Algonquin Earthwalker Program (now in its fifth year) in association with the Ontario Stewardship Rangers program (Pembroke); and the First Nations Juvenile Spacing Training and Employment Program which provided 12 weeks of work to 14 workers and one supervisor from eight communities on or adjacent to AbitibiBowater limits near Thunder Bay.



Throat Lake

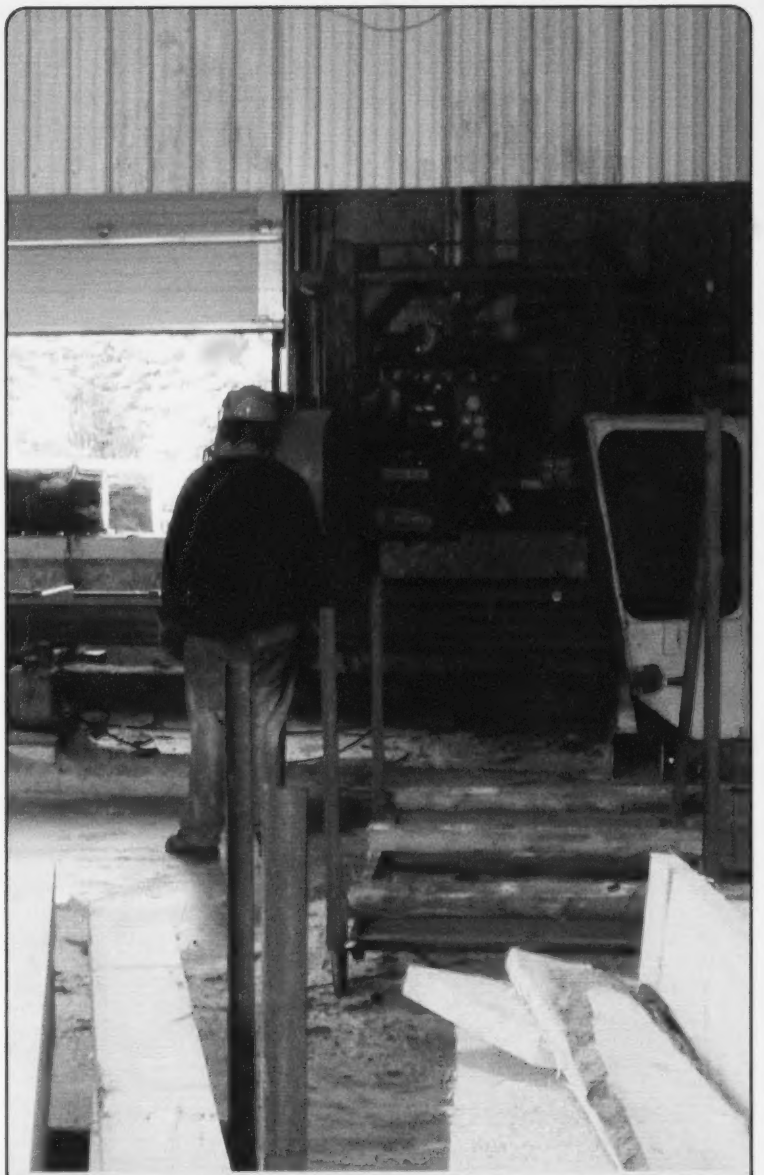
The most common training received by Aboriginal people is MNR's Forest Management Planning workshops. Workshops are offered to all planning teams at appropriate intervals in the FMP development process. As more Aboriginal people join planning teams, the benefits of this program are reaching more communities.

The MNR and industry also offered or supported many other training initiatives. Examples include:

- MNR contribution to the Board of Directors of Whitefeather Aboriginal Skills and Education Program (ASEP) initiative. One objective of ASEP is to educate Pikangikum First Nation youth. This education program will provide opportunities for youth to complete a recognized college forestry education program (Red Lake);
- Geographic Information Systems (GIS) training workshops for two First Nations communities to enhance proficiency with GPS data collection/uploading and plotter/computer operation (Sudbury);
- MNR and SFL staff worked with a First Nation community to host a forestry information session for community members to promote a greater understanding of various aspect of the forest management planning process (Sault Ste. Marie);
- A two day GPS workshop to build maps, compass and GPS skills for 12 First Nation members (Parry Sound);
- Ontario Parks sponsored three Algonquins to attend the Provincial Tree Marking Certification course and paid the course registration fees (Algonquin Park);
- The Algonquin Forestry Authority, (together with the MNR), advised communities of ongoing training opportunities, and offered to sponsor two individuals from each community (Algonquin Park); and
- Tembec provided support to an on-reserve adult education program for community members to receive a Grade 12 certificate of which 20 adults successfully graduated in June 2010 (Cochrane).

Aboriginal Employment in the Forest Industry

Although reporting on employment of Aboriginal people in the forest industry is not a requirement of Condition 34, some information on Aboriginal employment offers a more comprehensive understanding of forest management benefits accruing to Aboriginal people.



Sawmill Workers

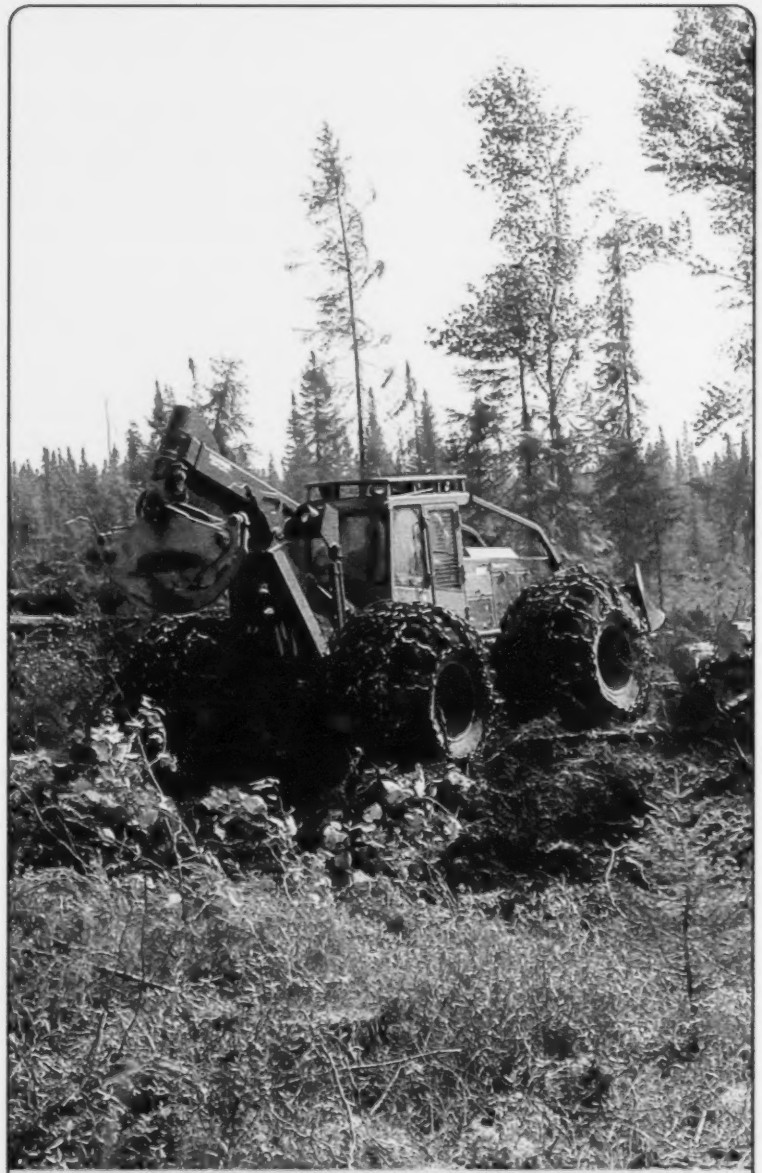
In 2009/10, participation levels of Aboriginal people working in all aspects of forest management varied. It is clear from district information that Aboriginal people were engaged in harvesting, as well as silvicultural and other activities. Aboriginal people were also employed at forest resource processing facilities (mills).

The characteristics of Aboriginal employment in the forest industry vary widely. While some work is permanent full-time, many of the employment opportunities are seasonal or part-time. Work relationships also vary, from individuals serving as regular employees of forest industry businesses (e.g., mill workers), to self-employed individuals performing tasks on a casual, intermittent basis (e.g., road and culvert maintenance). Business entities established may be affiliated directly with Aboriginal communities, may be run by individuals who are members of an Aboriginal community, or may be operated by non-Aboriginal parties.

Summary of Aboriginal Employment in the Forest Industry - 2009/10

Mill and Forest harvesting employment:

- A community affiliated business harvested 61,974 cubic metres (Algonquin Park);
- 65,000 cubic metres per year harvesting opportunities by communities from the Nighthawk and Iroquois Falls Forests (Cochrane);
- Over 100,000 cubic metres were harvested on the Lake Nipigon Forest by First Nation harvest shareholders through contracts with AbitibiBowater Inc.(Nipigon);
- Approximately 384,000 cubic metres on the Crossroute Forest were made available for harvest by parties affiliated with eight Aboriginal communities. Almost all parties harvested actively (Fort Frances);
- Three communities harvested 67,000 cubic metres that was allocated for them on the Nipissing Forest which employed 34 people (North Bay);
- Wahgoshig First Nation employed two members to harvest 37,000 cubic metres on the Iroquois Falls Forest through a third party licence under AbitibiBowater SFL (Kirkland Lake);
- AbitibiBowater has a long-term lease with Fort William First Nation for the sawmill site and building which are located in the First Nations industrial park. 30-50 Aboriginal people are employed at the sawmill (Thunder Bay);
- Tembec employed eight individuals at the Kapuskasing mill complex and eight chip trucks from Constance Lake First Nation company (Hearst); and



Skidder

- An estimated 35 individuals were employed at AbitibiBowater's Fort Frances mill (Fort Frances).

Silviculture and Other employment:

- Fifteen Aboriginal individuals were hired for pre-commercial thinning silvicultural work on the Gordon Cosens Forest (Hearst);
- AbitibiBowater Inc.'s First Nation Rangers program employed 15 individuals to plant over 1.5 million trees (Nipigon);
- First Nations affiliated businesses conducted silvicultural related activities on over 220 hectares of the Nipissing Forest (North Bay);
- A First Nations business was contracted to produce over 450, 000 tree seedlings and collected 94 hectoliters of cones (Sault Ste. Marie);
- The First Nations Juvenile Spacing Training and Employment Program provided 12 weeks of work to 18 workers and one supervisor from eight Communities on or adjacent to Abitibi-Bowater limits (Dryden);
- Approximately 223 hectares of tree marking, 74 hectares of site preparation and 47 hectares of manual cleaning were completed by Aboriginal contractors (Algonquin Park); and
- Contract for Wahgoshig Resources for tree planting employed 8 people (Kirkland Lake).

In addition, districts indicated that Aboriginal people were also engaged in: hauling forest products, road construction and maintenance, site preparation, values collection and compliance.

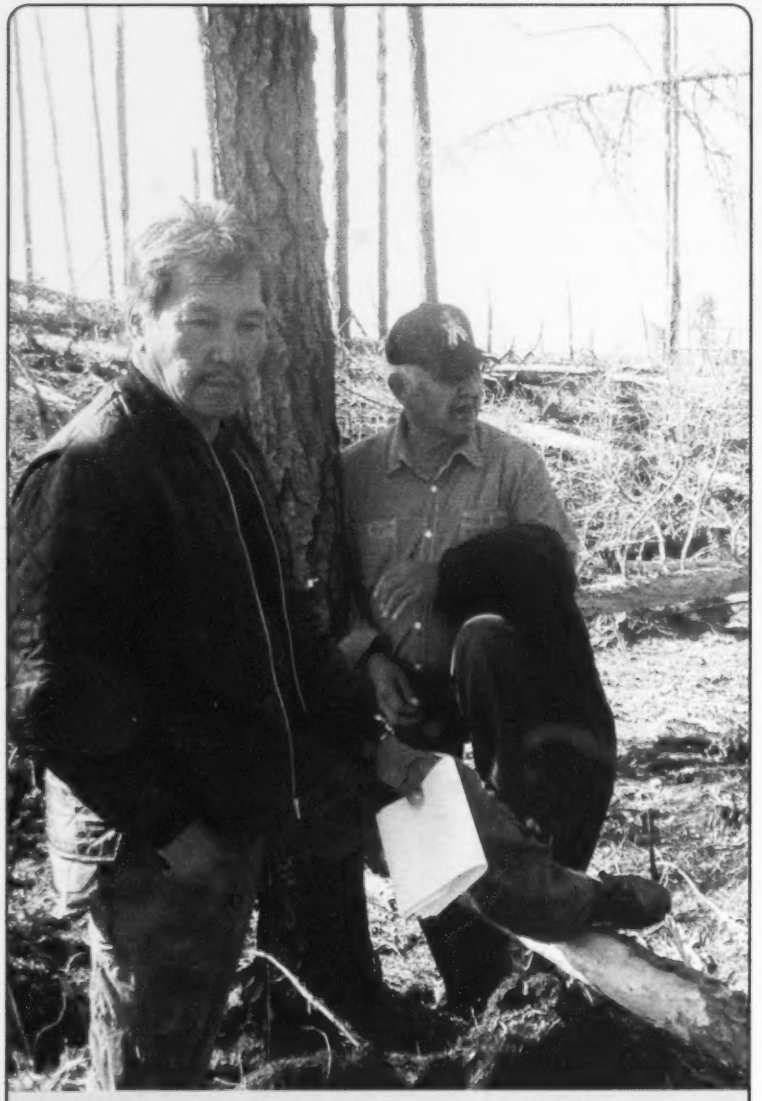
Although reporting of Aboriginal employment is not required by Condition 34, districts have made an effort to include data on Aboriginal employment to wherever possible. Districts are in many cases able to report or estimate how many individuals are engaged in particular activities or contracts, but typically do not have access to information on employment numbers in other activities. Some districts have been able to provide estimates of total numbers of Aboriginal people employed by the industry in the district. However, in many instances, data are incomplete on the overall numbers of Aboriginal people engaged in work in the forest industry. When this occurs, MNR districts have included statements in the Condition 34 reports that the information is not readily available.

Tree planting in a harvested area

Role in Planning and Management

In addition to efforts to achieve a more equal participation by Aboriginal peoples in the benefits of the forest management planning process, MNR districts seek effective forums for Aboriginal communities to have a greater say in the planning and management of forest resources. Forest Management Plans include a detailed Aboriginal Background Information Report and maps of Aboriginal Values. The Aboriginal Background Information Report summarizes the locations of natural resource features, land uses and values of interest to the Aboriginal communities, and forest management-related concerns of the communities. Districts have provided financial assistance to some communities to prepare these components or to hire outside contractors.

In many districts Aboriginal peoples are represented, together with industry and government, on forest management planning teams. Aboriginal members also often serve on local citizens committees (LCC). Table 7d summarizes Aboriginal involvement in forest management planning for each district. The columns relating to Aboriginal community representation on LCCs and planning teams reflect each instance that a particular community had a member on a particular committee or team. In some cases specific communities are represented on more than one LCC or planning team in a district; and are counted separately in this report.



Pikangikum Elders involvement with prescribed burn in the Whitefeather Forest

Table 7d - Aboriginal engagement in forest management planning processes - 2009/10

District	Aboriginal Communities Represented on LCCs		Aboriginal Communities Represented on Planning Teams		Aboriginal Background Information Reports on File for a Forest
	Active Member	Non-active Member	Active Member	Non-active Member	
Algonquin Park	1	0	9	0	5
Bancroft	1	1	4	0	4
Chapleau	0	2	8	4	12
Cochrane	2	1	2	1	6
Dryden	1	0	3	4	14
Fort Frances	1	0	2	0	15
Hearst	0	0	5	0	10
Kirkland Lake	3	0	5	0	5
Nipigon	7	1	12	5	23
North Bay	6	0	6	0	6
Parry Sound	0	1	0	2	5
Pembroke	1	0	8	0	4
Red Lake	0	0	3	0	6
Sault Ste. Marie	0	0	4	0	6
Sioux Lookout	1	0	2	0	5
Sudbury	1	1	6	7	10
Thunder Bay	7	1	6	0	8
Timmins	4	0	11	3	9
Wawa	7	0	4	2	11

Martel Forest Open House

Key Facts

This section provides information on the construction and maintenance of all forest access roads (primary, branch and operational roads).

Summary of Roads Funding Programs - 2009/10

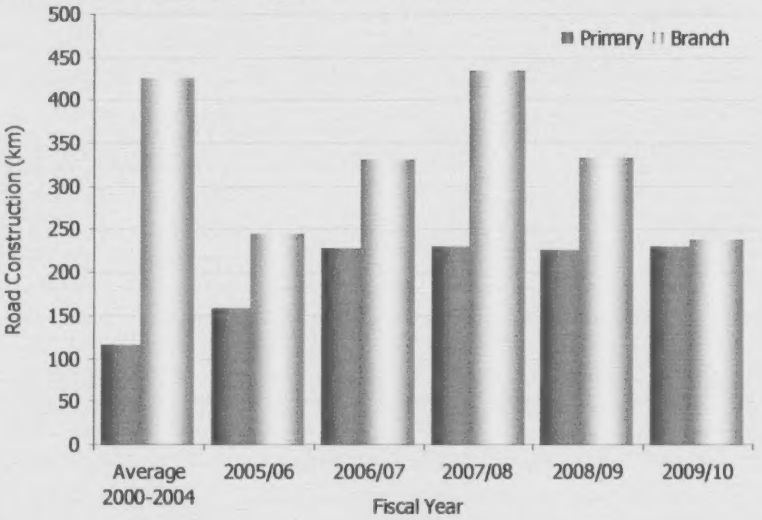
- Spending for the Forest Access Capital Roads program (MNR/MNDMF) was $3.73 million;
- MNR entered into road construction and maintenance agreements with SFL and FRL holders on 46 management units (including the Algonquin Forest Authority); and
- The forest industry incurred costs of over $80 million on the construction, re-construction, maintenance, and monitoring of 20,914 km of primary and branch roads, and the construction/repair/replacement of 975 stream crossings. The government's share of this work was just under $75.0 million (Table 8a). The forest industry incurred 100% of the costs of constructing and maintaining all operational roads on Crown lands.

Table 8a - Roads Funding Program 2009/10

Category	Amount
Primary Roads	$68,776,505
Branch Roads	$5,613,676
Total	$74,390,181
MNR Admin Costs	$609,086
Total Funds Spent	$74,999,267

**The Sapawe Forest did not submit an Annual Report for the 2009/10 fiscal year. All kilometre values include estimates for the Sapawe Forest based on the 2008/09 Annual Report*

Figure 8a - Primary and Secondary Road Construction by Year



Summary of Road Construction, Maintenance and Use Management - 2009/10

- 3,226 kilometres of primary, branch and operational roads were constructed (Figure 8a). The majority of the roads constructed during 2009/10 were operational roads; and
- 24,581 kilometres of roads were maintained, with the majority of the road maintenance activities occurring on primary roads (Figure 8b).

Summary of Road Access Control and Decommissioning - 2009/10

- 769 kilometres of primary, branch and operational roads had access controls established (Figure 8c); and
- 562 kilometres of primary, branch and operational roads were decommissioned by physical or natural means (Figure 8d).

Figure 8b - Total Road Maintenance by Road Class by Year

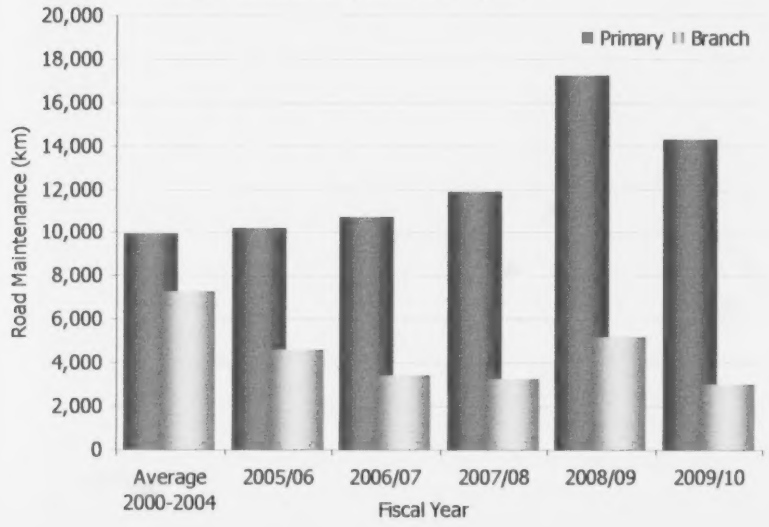


Figure 8c - Road Access Controls Established by Year

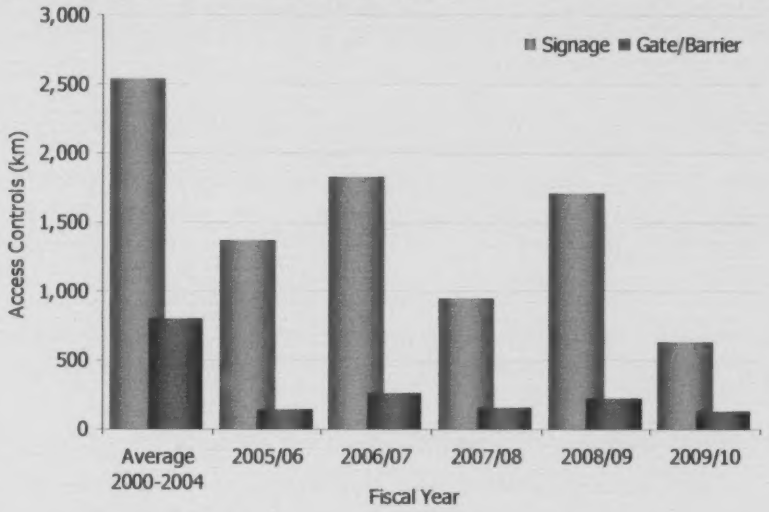
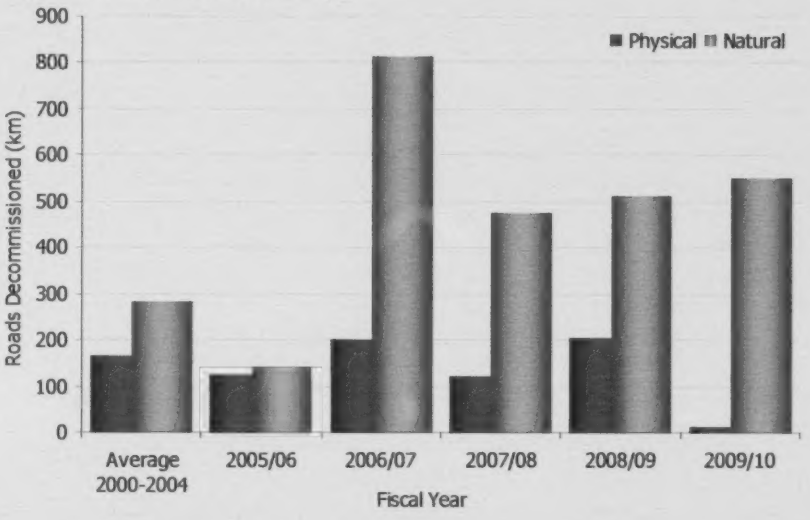


Figure 8d - Roads Decommissioned by Year

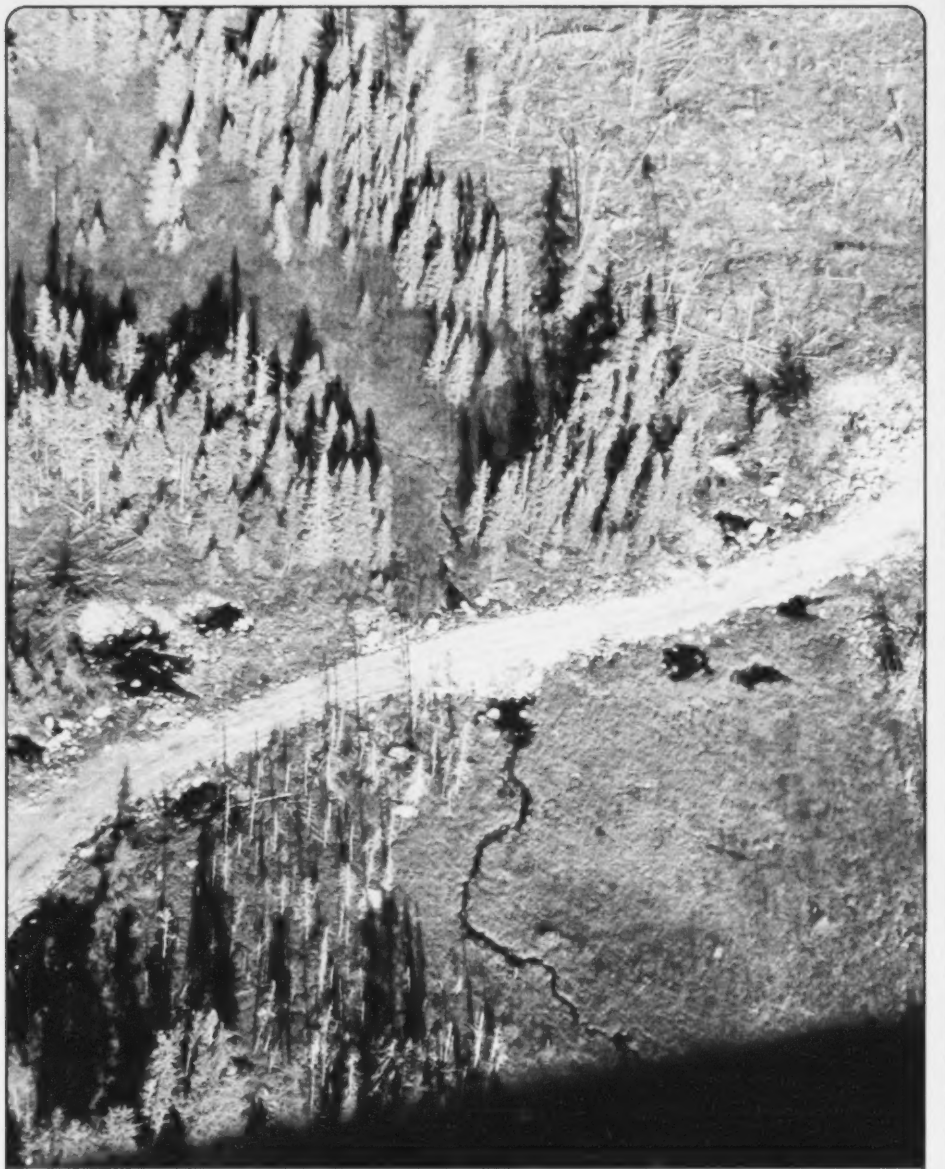


Background

Primary roads are roads that provide principal access to the management unit, and are constructed, maintained and used as the main road system on the management unit. Primary roads are normally permanent roads, although there may be significant periods of time when specific primary roads are not required for forest management purposes.

Branch roads connect to existing or new primary or branch roads, providing access to and through areas of operations on a management unit.

Operational roads are roads within areas of operations that provide short-term access for harvest, renewal and tending operations. Operational roads are normally not maintained after they are no longer required for forest management purposes, and they are often site prepared and regenerated.



Forest Access Road

Roads Funding Programs

There are a number of roads funding programs available for the construction, maintenance and monitoring of forest access roads on Crown land.

Forest Access Capital Roads Program

The Forest Access Capital Roads Program is jointly funded by the Ministry of Natural Resources and the Ministry of Northern Development, Mines and Forestry (MNDMF). This program funds access roads that are the responsibility and liability of the Crown, to maintain as multipurpose roads. Most of the road work funded by the two ministries serves several purposes, including public access, public safety and forest management.

Provincial Roads Funding Program

The Minister's Council Report on Forest Sector Competitiveness, released in June 2005, recommended that the provincial government assume its proportional share of the costs of building and maintaining forest access roads on Crown forests that serve multi-resource uses. The report recommended that the government's share cover 100% of primary road costs, and 50% of secondary road costs. As a result, in September 2005 the Minister of Natural Resources announced the Road Maintenance Funding Program; with $28 million available to the forest industry to cover the costs of maintaining primary forest access roads. In February 2006 the Premier and the Minister of Natural Resources announced an additional $47 million of funding for the Provincial Roads Funding Program. Beginning April 1, 2006, a total of $75 million was made available annually to contribute to the expenses incurred by the forest industry to construct and maintain forest access roads.

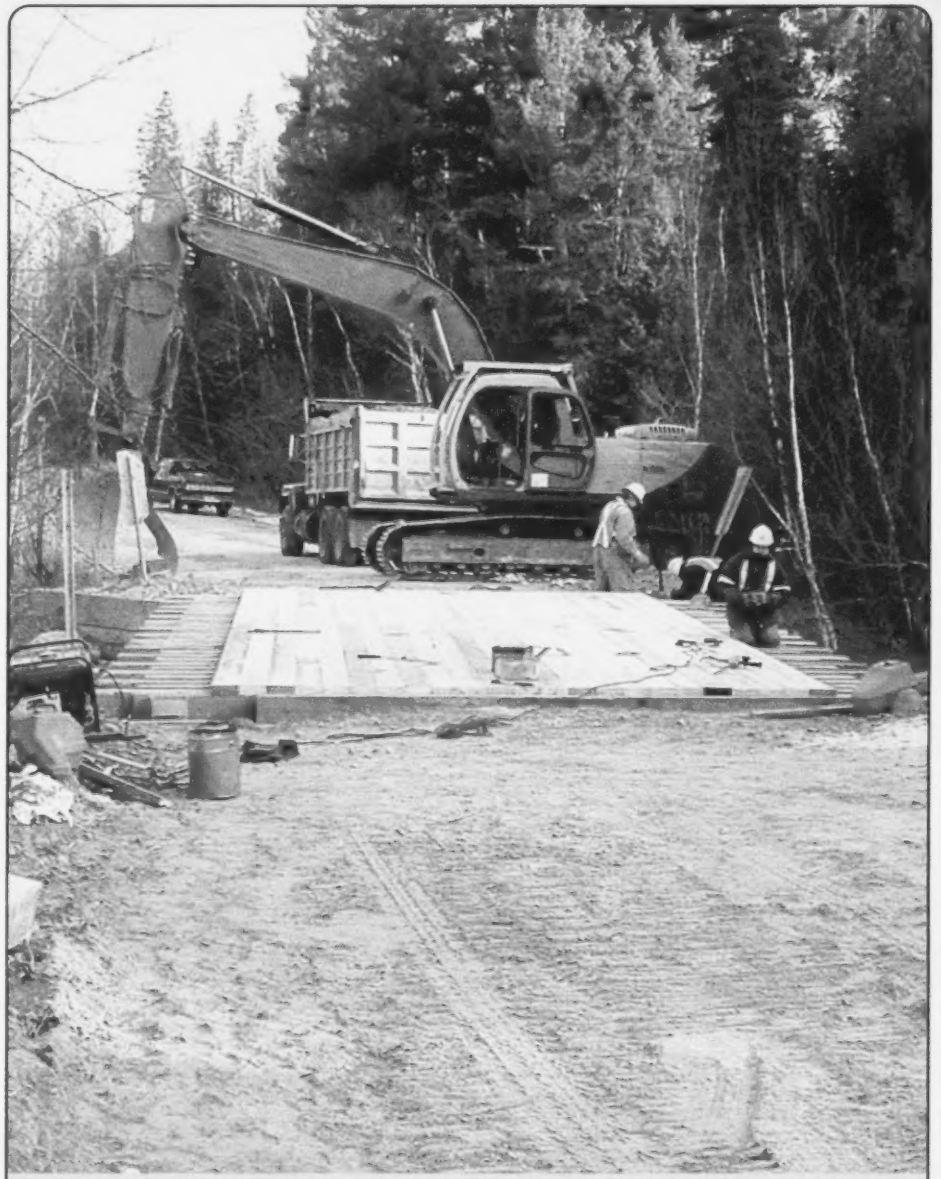
Roads eligible for funding have to be identified as primary or branch forest access roads in approved Forest Management Plans and Annual Work Schedules, be located on Crown land, and not be limited to use only by the forest industry.

Road Construction

These funded forest access roads benefit not only the forest industry, but also many other users, including: mining companies, tourism operators, Aboriginal communities, utility and railway companies, hunters, anglers, campers, trappers, cottagers, and the general public. These roads also provide part of the rural infrastructure for emergency preparedness and response.

Road Access Control and Decommissioning

For reasons of public safety and/or resource management, forest access roads may be closed to certain uses on a temporary, seasonal, or permanent basis. Methods used to control or limit access can be classified into two categories: erecting signs to advise the public of the restriction (referred to as signage); or, installing gates or using other physical means such as ditching (referred to as a gated or physical barrier). Decommissioning of roads may be accomplished by physical means (ditching, culvert or bridge removal, berming and scarification), or roads may be left to deteriorate naturally. Operational roads may be constructed and decommissioned in the same year. Road access control and decommissioning must be planned in advance of construction, and documented in the FMP for each management unit. These activities must also be reported in the management unit annual report.



Bridge Construction

Data

Table 8b - Total Road Construction by Road Class by Year (km)

Road Class	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Primary	116	159	229	229	226	230
Branch	426	244	332	435	334	238
Total	543	403	561	664	560	468
Operational[1]	n/a	n/a	n/a	4,208	3,450	2,758

[1] Management unit annual reporting of operational road construction was not required until 2007/08.

Table 8c - Total Road Maintenance by Road Class by Year (km)

Road Class	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Primary	9,963	10,200	10,749	11,916	17,250	14,321
Branch	7,239	4,621	3,444	3,247	5,172	2,982
Operational	17,202	6,033	6,724	5,460	5,222	7,279
Total	34,405	20,855	20,917	20,623	27,644	24,581

Table 8d - Road Access Controls Established by Year (km)

Access Control Type[1]	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Signage	2,539	1,371	1,824	944	1,709	638
Gate/Barrier	809	143	269	159	229	131
Total	3,347	1,514	2,093	1,103	1,938	769

[1] "Other" category rolled into signage for pre-2007/08 totals

Table 8e - Roads Decommissioned by Year (km)

Decommision Type	Average 2000-2004	2005/06	2006/07	2007/08	2008/09	2009/10
Physical	165	125	202	121	206	13
Natural	283	140	815	476	511	549
Total	448	265	1,017	597	717	562

Forest Access Road

Table 8f - 2009/10 Roads Funding Program

Management Unit	Total Road Program Reimbursement		
	Primary Roads	Branch Roads	Total
Algoma Forest	$1,368,381	$44,354	$1,412,736
Algonquin Park Forest	$1,701,807	$44,321	$1,746,128
Armstrong Forest	$787,908	$0	$787,908
Bancroft-Minden Forest	$514,902	$178,104	$693,006
Big Pic Forest	$2,216,250	$7,164	$2,223,415
Black River Forest	$488,843	$833	$489,676
Black Sturgeon	$426,013	$577,414	$1,003,427
Caribou Forest	$1,018,475	$20,151	$1,038,626
Cochrane Moose River	$726,724	$0	$726,724
Crossroute Forest	$3,306,090	$812,892	$4,118,982
Dog River-Mat	$2,263,062	$471,021	$2,734,083
Dryden Forest	$578,312	$21,861	$600,173
English River	$2,447,742	$108,472	$2,556,214
French/Severn Forest	$438,949	$239,696	$678,645
Gordon Cosens Forest	$4,454,138	$30,766	$4,484,904
Hearst Forest	$1,650,846	$204,090	$1,854,936
Iroquois Falls Forest	$1,785,535	$518,192	$2,303,727
Kenogami Forest	$3,607,923	$186	$3,608,109
Kenora Forest	$587,088	$30,406	$617,494
Lac Seul Forest	$2,396,132	$22,973	$2,419,105
Lake Nipigon	$1,495,723	$55,045	$1,550,768
Lakehead Forest	$847,330	$125,215	$972,545
Magpie Forest	$498,762	$6,420	$505,182
Martel Forest	$2,735,227	$209,650	$2,944,877
Mazinaw-Lanark Forest	$402,167	$29,588	$431,754
Nagagami Forest	$1,136,599	$30,043	$1,166,643
Nighthawk Forest	$996,777	$8,434	$1,005,211
Nipissing Forest	$1,680,165	$87,743	$1,767,909
Northshore Forest	$1,282,421	$699,540	$1,981,961
Ogoki Forest	$1,661,333	$2,600	$1,663,933
Ottawa Valley Forest	$760,760	$100,840	$861,601
Pic River Ojibway	$352,957	$12,992	$365,949
Pineland Forest	$1,135,458	$306	$1,135,764
Red Lake Forest	$428,228	$0	$428,228
Romeo Malette Forest	$1,048,324	$98,468	$1,146,791
Sapawe Forest	$582,020	$390	$582,410
Smooth Rock Falls	$430,429	$10,171	$440,600
Spanish Forest	$2,776,002	$7,798	$2,783,800
Spruce River	$1,753,493	$292,091	$2,045,584
Sudbury Forest	$1,057,069	$0	$1,057,069
Temagami	$219,754	$21,094	$240,847
Timiskaming Forest	$4,549,927	$118,214	$4,668,142
Trout Lake Forest	$2,803,243	$136,458	$2,939,701
Wabigoon Forest	$2,889,221	$224,353	$3,113,574
Whiskey Jack Forest	$1,453,152	$3,330	$1,456,482
White River Forest	$1,034,841	$0	$1,034,841
	$68,776,505	$5,613,676	$74,390,181

MNR Admin Costs	$609,086
Total Funds Spent	$74,999,267

Key Facts

This chapter highlights the forest compliance monitoring program undertaken to ensure MNR and forest industry conduct forest operations according to the legislation and approved plans and to prevent damage to Crown forests. Under this program, the MNR and forest industry inspect and report on access, harvest, renewal and maintenance activities. The Forest Operations Information Program (FOIP) stores information collected through forest compliance monitoring for analysis and reporting to MNR, the forest industry and the public.

Summary of Forest Operations Compliance Monitoring - 2009/10

- The average compliance rate across all operations (access, harvest, renewal, and maintenance) for both industry and MNR was 94%;
- 255 certified forest operations compliance inspectors submitted 3,636 inspections to FOIP during 2009/10 a reduction in reports of 6% from 2008/09 (Figure 9a);
- The number of inspections undertaken by industry and MNR (Table 9a) was consistent with levels of forest management activities;
- A total of 63 remedy and enforcement actions resulted in penalties and charges valuing $30,925 (Table 9b); and
- Reduced harvest, access, renewal and maintenance activities due to the downturn in the forest industry are responsible for the reduced number of compliance inspections relative to previous years.

Figure 9a - Compliance Inspection Report Summary

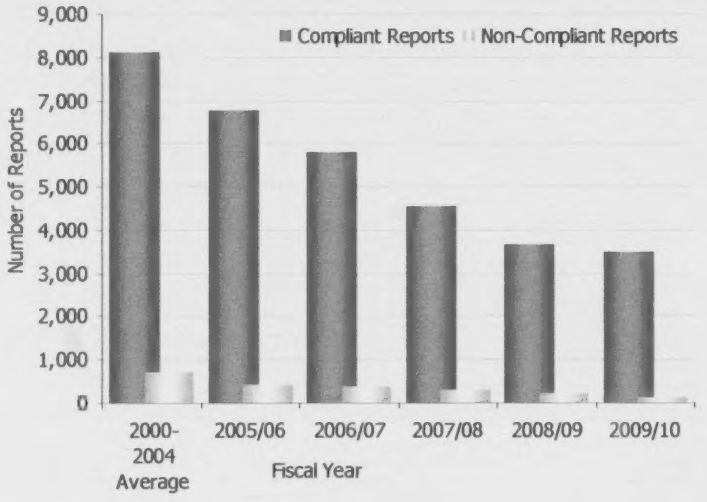


Table 9a - Forest Operations Compliance Inspection Reports Summary - 2009/10

Operation	Reports	Industry	MNR
Access	Compliant Reports	721	230
	Non-Compliant Reports	15	33
	Total	736	263
Harvest	Compliant Reports	1,680	507
	Non-Compliant Reports	41	36
	Total	1,721	543
Renewal	Compliant Reports	242	48
	Non-Compliant Reports	4	3
	Total	246	51
Maintenance	Compliant Reports	63	9
	Non-Compliant Reports	4	-
	Total	67	9
All	Compliant Reports	2,691	809
	Non-Compliant Reports	63	73
	Total	2,754	882

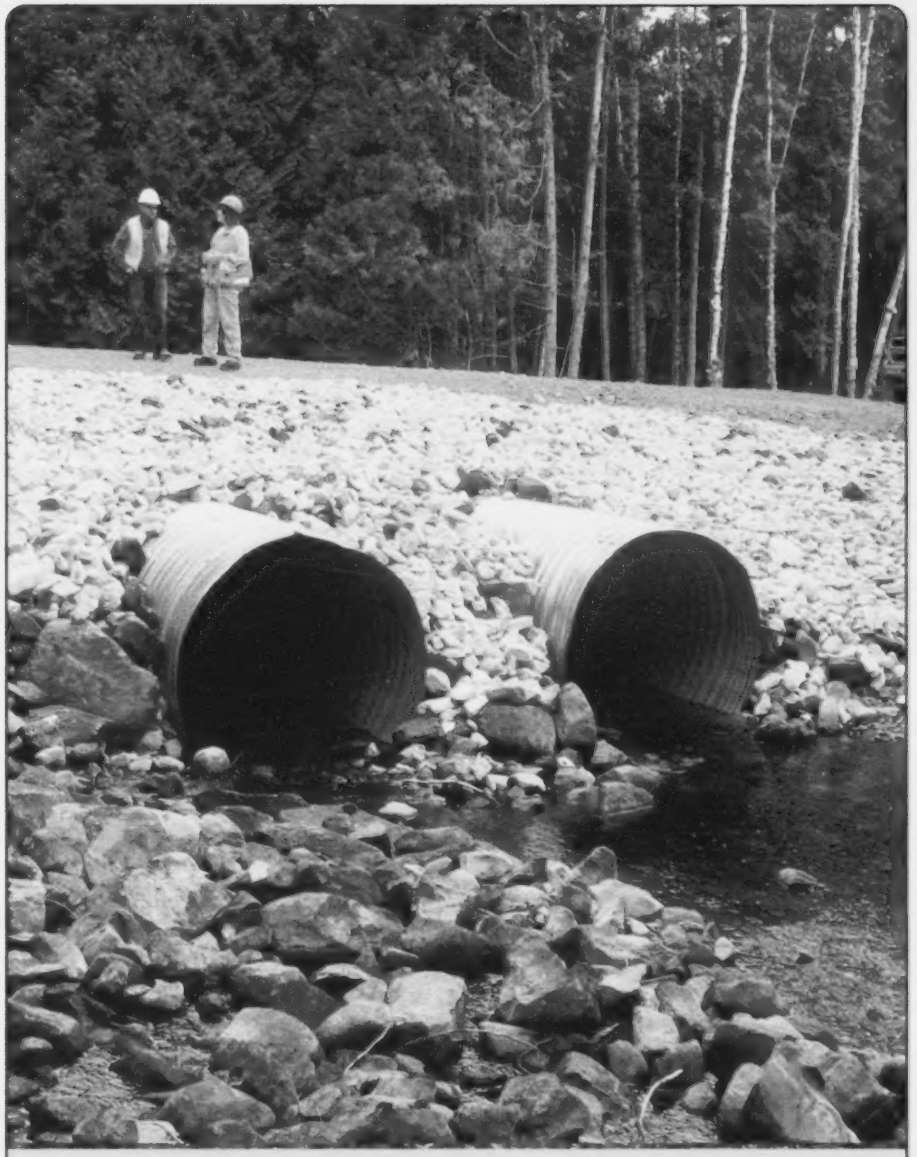
Table 9b - Remedy and Enforcement Actions Taken - 2009/10

Method		Number	Value
Written Warning		28	
Orders	Stop/Limit/Amend	0	
	Repair	1	
	Compliance	9	
Administrative Penalty[1]		21	$ 24,025
Offence Charge[2]		4	$ 6,900
License Suspension and Cancellation		0	
Total Actions		63	$ 30,925

[1] *To Forestry Futures Trust Fund*

[2] *To Consolidated Revenue Fund (general revenue)*

Sources: FOIP (Forest Operations Information Program), July 27, 2011
OTARS (Ontario Timber Accounts Receivable System),
CAVRS (Compliance Activity Violations Reporting System), Aug. 23, 2011



Compliance Inspection

Background

Ontario's forest operations compliance monitoring system is designed to ensure MNR and forest industry conduct forest operations in compliance with legislation and in accordance with approved plans (e.g., forest management plans). It also ensures that forest management related statutes and regulations are interpreted consistently and enforced fairly but firmly in all cases of non-compliance.

The forest compliance program is based on a partnership between MNR and forest industry, with a clear separation of roles and responsibilities. The industry role is one of "self-monitoring" wherein the SFL holder has lead responsibility for a comprehensive forest operations compliance program as a condition of their licence. This compliance program includes planning, monitoring (inspecting and reporting), training and education. The SFL holder is required to report all suspected incidents of non-compliance on their management unit to MNR. As the regulatory agency, MNR retains full responsibility for administration and implementation of the CFSA which includes monitoring, auditing, determining compliance status, taking appropriate enforcement action and applying remedies when necessary.

The compliance program reports infractions of the CFSA committed by private individuals as "non-licensee related". Management Units not assigned to an SFL remain the responsibility of MNR for delivery of all aspects of the compliance program. The FOIP is the system used for recording compliance inspections. This web-based application provides a consistent approach to all forest compliance inspectors for reporting inspections. Its use is mandatory for reporting on all forest operations inspections conducted on Crown land.

Compliance Inspection

All MNR and forest industry forest compliance inspectors must be certified. This certification ensures consistent skills and competencies in compliance assessment and reporting among inspectors. To maintain certification, inspectors are required to undertake a program of continuing education and to undergo testing on a five-year cycle.

Remedy and Enforcement

Industry must report all suspected non-compliant situations. MNR verifies these situations then determines the appropriate enforcement action and/or remedy.

The earlier an operational problem is identified and responded to, the more likely impacts can be avoided, prevented or mitigated. In many instances, prompt corrective action is undertaken and enforcement action or remedies are not warranted.

CFSA enforcement and remedy provisions are primarily directed at licensees of the Crown, but any person who contravenes the CFSA may be subject to its remedies. Any enforcement action taken or remedy applied will be unique to, and reflect the circumstances and nature of the infraction and the offender.

Although all incidents of non-compliance are reported in the fiscal year in which they occurred, it often takes time to determine and apply remedies (e.g. under investigation or subject to court action). Remedies are recorded and reported when resolved.

Inspector Training

Data

Table 9c - Forest Operations Compliance Inspection Reports Summary

Source	Reports	2000-2004 Average	2005/06	2006/07	2007/08	2008/09	2009/10
Industry	Compliant Reports	6,575	5,584	4,721	3,749	2,901	2,691
	Non-Compliant Reports	324	233	197	159	98	63
	Total	6,899	5,817	4,918	3,908	2,999	2,754
MNR	Compliant Reports	1,552	1,180	1,101	788	777	809
	Non-Compliant Reports	388	197	179	116	98	73
	Total	1,940	1,377	1,280	898	875	882
All	Compliant Reports	8,127	6,764	5,822	4,537	3,678	3,500
	Non-Compliant Reports	712	430	376	275	196	136
	Total	8,839	7,194	6,198	4,806	3,874	3,636

Table 9d - Remedy and Enforcement Actions Taken

Value	2005/06	2006/07	2007/08	2008/09	2009/10
Total Actions	324	291	239	155	63
Value	$101,744	$154,806	$53,506	$36,640	$30,925
	$ 101,744	$ 154,806	$ 53,506	$ 36,640	$ 30,925

Overview

This section summarizes Independent Forest Audits (IFAs) completed in 2009 as required by the CFSA.

IFAs are a requirement of the CFSA - Ontario Regulation 160/04, Condition 28 of the MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (2003), and are a condition of all Sustainable Forest Licences (SFLs). All management units are audited at least once every five years to review operations and to examine forest management activities carried out over the previous five years.

An independent forest audit is a systematic and documented verification process to assess adherence to the forest management plan and to the planning process. The performance of both the licensee and the MNR are audited during the IFA. Assessing the interpretation and application of provincial legislation, manuals, policies and guidelines at the management unit level is also part of the audit. Auditors examine the effectiveness in achieving the planned objectives and provide an assessment of forest sustainability for the management unit. Audit teams also review licensee compliance with the obligations of their specific SFL.

The audit terms of reference are the same for all IFAs. This includes the audit team personnel requirements for the audit team. All members of an audit team must have a minimum of five years recent and relevant experience in forest types similar to those being audited. They must be independent of the operations they audit, as well as free from any conflict of interest throughout the process.

The audit team must include a Registered Professional Forester. Audit teams are required to provide an audit against the requirements that were in effect during the audit period, and prepare a report for publication. Auditor selection and contract management is facilitated by the Forestry Futures Trust Committee and audits are paid for by the Forestry Futures Trust Fund.

In order to fully address the audit purpose and objectives, an audit process and protocol document sets out the forest management principles, criteria, and procedures for undertaking IFAs.

The audit protocol identifies eight guiding principles: commitment; public participation; forest management planning; forest management plan implementation; systems support; monitoring; achievement of management objectives and forest sustainability; and, contractual obligations. For each principle, a series of specific criteria have been identified that, when met, will result in achievement of the principle.

Where criteria are not achieved, or the audit team observes a critical lack of effectiveness in forest management activities, the audit team may develop a recommendation to address the situation. Recommendations are directed to the licensee, the MNR, or both auditees jointly. Audit teams may also recognize and document exceptional forest management practices (commonly known as "best practices").

Action plans must be developed by the auditees to address audit report recommendations. Recommendations directed to the SFL holder and MNR district are addressed in a management unit action plan. Management unit action plans are developed by the SFL holder and MNR district staff and are approved by senior MNR executives. Recommendations directed to corporate MNR are addressed in a separate annual provincial action plan. A status report on the implementation of the action plan is required two years after its approval, to ensure progress is occurring as specified in the plan. All IFA reports are tabled in the Legislature. IFA reports and action plans are available at: http://www.ontario.ca/forests

Locating Audit Sites

Culvert Removal Inspection

Summary of Independent Forest Audits - 2009/10

IFAs were completed on seven management units in 2009. All of the management units were managed via SFLs throughout the five-year audit period, although one SFL (Whiskey Jack Forest) was surrendered to the Crown in September, 2009. Table 10a provides a complete listing of the 2009 audits.

The results of the 2009 IFAs were positive. Six of the seven audit reports concluded that, during the term of the audit, the forests were being managed in general compliance with legislation and policy requirements, licence requirements, and with the principles of sustainable forest management (Table 10b). In the case of the Whiskey Jack Forest, auditors identified a 'critical exception' to sustainable management related to the forest's silviculture program. Licence extension was recommended for five of the forests audited. In the case of the Big Pic Forest, auditors concluded that the forest had been managed sustainably; however, they did not make a recommendation on a licence extension as the SFL holder was in receivership. In the case of the Whiskey Jack Forest, the SFL holder surrendered their licence to the Crown in September, 2009 and therefore, no licence extension recommendation was made.

The audit reports provided a total of 114 recommendations. Table 10c provides a summary of recommendations by audit principle. The majority of the recommendations were related to plan implementation (37%), followed by monitoring (20%), and forest management planning (20%).

Table 10a - List of Independent Forest Audits and associated auditors for 2009

Management Unit	Management Entity	Independent Auditor
Big Pic Forest	Marathon Pulp Inc.[1]	Arbex Forest Resource Consultants Ltd.
Caribou Forest	AbitibiBowater Inc.	Arbex Forest Resource Consultants Ltd.
Lakehead Forest	Greenmantle Forest Inc.	AborVitae Environmental Services Ltd.
Mazinaw-Lanark Forest	Mazinaw-Lanark Forest Management Inc.	Craig Howard, R.P.F.
Timiskaming Forest	Timiskaming Forest Alliance Inc.	ArborVitae Environmental Services Ltd.
Trout Lake Forest	Domtar Inc.	KBM Forestry Consultants Inc.
Whiskey Jack Forest	AbitibiBowater Inc.[1]	KBM Forestry Consultants Inc.

[1] *Subsequent to the audit period, these forests came under Crown management*

Table 10b - Independent Forest Audit Results for 2009 Audits

Management Unit	In Compliance[1]	Sustainably Managed	SFL Extension Recommended
Big Pic Forest	Yes	Yes	N/A[2]
Caribou Forest	Yes	Yes	Yes
Lakehead Forest	Yes	Yes	Yes
Mazinaw-Lanark Forest	Yes	Yes	Yes
Timiskaming Forest	Yes	Yes	Yes
Trout Lake Forest	Yes	Yes	Yes
Whiskey Jack Forest	Yes	Yes[3]	N/A[4]

[1] *Managed in overall compliance with legislative and policy requirements in effect during the audit period.*

[2] *The audit team concluded the forest had been managed in compliance with legislative and policy requirements and sustainably; however, they did not recommend licence extension due to financial status of the SFL holder.*

[3] *The auditors identified one 'critical exception' to sustainability on the Whiskey Jack Forest - a lack of tending in conifer plantations was leading to an increased hardwood component on the forest, which goes against the management intention of maintaining a conifer-dominated forest.*

[4] *Because the SFL for the Whiskey Jack Forest was surrendered to the Crown in September, 2009, auditors did not make a licence extension recommendation.*

Table 10c - Summary of 2009 IFA Recommendations by Principle

Recommendations by Audit Principle1	Management Unit							Total	% Total [2]
	Big Pic Forest	Caribou Forest	Lakehead Forest	Mazinaw-Lanark Forest	Timiskaming Forest	Trout Lake Forest	Whiskey Jack Forest		
Commitment	0	0	1	0	0	0	0	1	1%
Public Participation	2	0	3	2	0	1	1	9	8%
Forest Management Planning	4	2	6	1	4	3	3	23	20%
Plan Implementation	4	4	4	8	1	8	13	42	37%
System Support	0	1	2	1	1	1	0	6	5%
Monitoring	3	4	4	3	2	5	2	23	20%
Management Objectives and Forest Sustainability	0	1	1	0	0	2	1	5	4%
Contractual Obligations	3	0	1	0	0	0	1	5	4%
Total	16	12	22	15	8	20	21	114	100%

[1] *Values exclude the final recommendation on licence extension.*

[2] *This represents the number of audit recommendations by audit principle as a percentage of the total number of audit recommendations (Percentages may not total 100% because of rounding).*

Recommendations common to a number of the reports, grouped by subject matter, include:

Forest Management Planning and Implementation

- Forest management plans need to clearly define inputs used in forest estate modeling;
- More assessments for forest values need to be funded and conducted;
- Slash management practices need to be improved;
- Road-building practices, specifically cross-drainage installation, and bridge installations need to be improved;
- Aggregate pits need to be properly rehabilitated to ensure public safety; and
- Site damage caused during harvesting operations needs to be better mitigated.

Monitoring

- The MNR and forest industry need to come to consensus on compliance assessments to ensure consistency.

Management Objectives and Forest Sustainability

- Year 10 Annual Reports need to be prepared in accordance with the Forest Management Planning Manual.

Table 10d summarizes the recommendations by the target organization. The 2009 audit reports identified one best practice. The Timiskaming Forest Alliance Inc. and its shareholders were commended for following good forest practices and avoiding the use of two-pass harvesting.

Table 10d - Summary of 2009 IFA Recommendations by Responsibility

	Recommendations by Organization[1]			
Management Unit	Licensee[2]	MNR	Joint (Licensee & MNR)[3]	Total
Big Pic Forest	6	6	4	16
Caribou Forest	8	0	4	12
Lakehead Forest	7	9	6	22
Mazinaw-Lanark Forest	5	4	6	15
Timiskaming Forest	1	7	0	8
Trout Lake Forest	11	4	5	20
Whiskey Jack Forest	13	7	1	21
Total[4]	51 (45%)	37 (32%)	26 (23%)	114 (100%)

[1] Values exclude the final recommendation on licence extension.

[2] Whiskey Jack Forest and Big Pic Forest do not currently have licences; the number of recommendations under the 'Licensee' column that would normally be addressed by the licensees of these forests are presently the responsibility of the MNR.

[3] Recommendations directed at planning teams were assigned as joint recommendations.

[4] The number in parentheses represents the number of audit recommendations by organization as a percentage of the total number of audit recommendations.

Summary of 2005 - 2009 Audit Reports

Table 10e summarizes the audit results from 47 audit reports completed over a five-year period from 2005 to 2009. During this five-year period 39 reports recommended licence extension, two reports recommended conditional licence extension, and two reports recommended the licence not be extended. Four reports did not provide a recommendation on licence extension. In two instances a Crown management unit was being audited; Crown management units are not managed under an SFL and therefore no recommendation is made on licence extension.
In the remaining two instances no recommendation was made due to the financial status of the licence holder on one management unit and the surrender of the licence to the Crown on the other management unit.

The Independent Forest Audit program is serving its purpose. Audit reports identify areas for improvement before they begin to have serious consequences. The MNR and SFL holders respond by putting solutions in place, which are documented in mandatory action plans that are developed subsequent to the completion of audit reports.

Table 10e - Summary of 2005-2009 Audit Reports

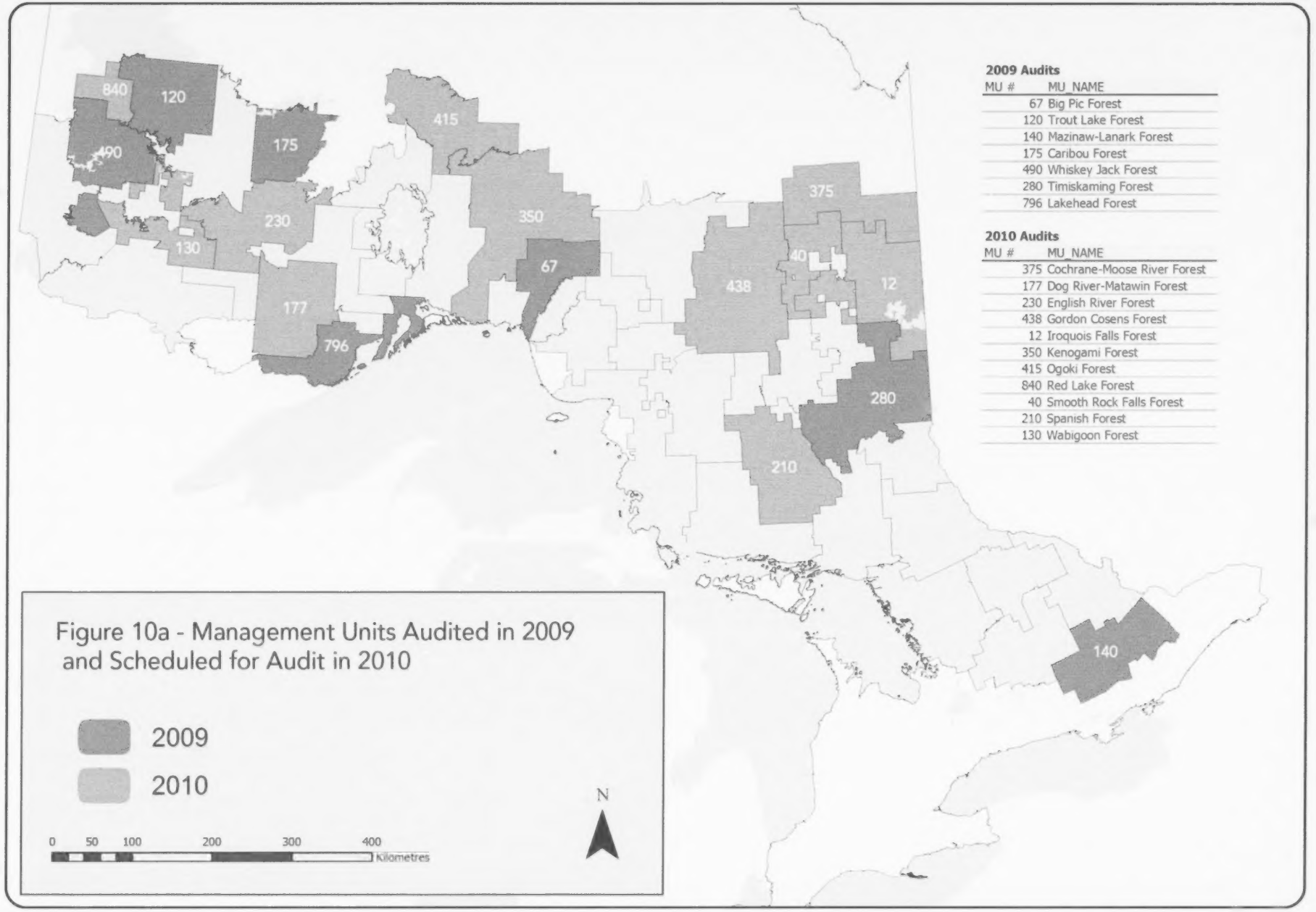
Audit Year	Audit Reports	Recommendation on Licence Extension		
		Extend	Extend with Conditions	Do Not Extend
2005	11[1]	8	0	2
2006	15[2]	13	1	0
2007	9	9[3]	0	0
2008	5	4	1	0
2009	7[4]	5	0	0
Total	47	39	2	2

[1] Includes the Cochrane-Moose River Management Unit which is not managed under a Sustainable Forest Licence and therefore no recommendation was made on licence extension.

[2] Includes the Temagami Management Unit which is not managed under a Sustainable Forest Licence and therefore no recommendation was made on licence extension.

[3] Includes the Algonquin Park Forest which is not managed under a Sustainable Forest Licence. Auditors provide a recommendation on whether the Algomquin Forest Agreement should be extended.

[4] Recommendations on licence extension not provided on two mangement units due to the Sustainable Forest Licence being surendered on one management unit and the financial status of the Sustainable Forest Licence manager on the other management unit.



2009 Audits

MU #	MU_NAME
67	Big Pic Forest
120	Trout Lake Forest
140	Mazinaw-Lanark Forest
175	Caribou Forest
490	Whiskey Jack Forest
280	Timiskaming Forest
796	Lakehead Forest

2010 Audits

MU #	MU_NAME
375	Cochrane-Moose River Forest
177	Dog River-Matawin Forest
230	English River Forest
438	Gordon Cosens Forest
12	Iroquois Falls Forest
350	Kenogami Forest
415	Ogoki Forest
840	Red Lake Forest
40	Smooth Rock Falls Forest
210	Spanish Forest
130	Wabigoon Forest

Figure 10a - Management Units Audited in 2009 and Scheduled for Audit in 2010

Overview

This section reports on forest companies in Ontario that have received certification by independent third party organizations. Forest certification is a tool for forestry organizations to have their forest management practices assessed to maintain access to consumer markets. The forest management practices are independently audited to a forest management standard that has been developed according to certain environmental, economic and social values. These standards are accredited independently of government and forest companies. This process requires applicants to demonstrate they are complying with, or progressing towards those certification standards.

Forest certification is a market-oriented means of promoting sustainable forest management, in which an independent third party evaluates forest management systems according to external pre-established standards. In April 2004 the Minister of Natural Resources announced his intention to have all Sustainable Forest Licences certified to an acceptable performance standard by the end of 2007.

Forest products consumers are assured of an unbiased evaluation when forest certification evaluations are implemented by independent third party organizations (called certifiers). Within the limits of its provincial government mandate, the MNR provides technical and policy advice, both during the development of certification standards and to forest companies seeking certification of forest lands in Ontario.

There are three forest certification standards used by Ontario forest companies.

1. The Canadian Standards Association (CSA) Sustainable Forest Management (SFM) Standard, approved by the Standards Council of Canada;
2. The two standards of the international Forest Stewardship Council (FSC) Principles and Criteria for Forest Management that are applicable to Ontario: FSC Standards for Well Managed Forests in the GLSL Forests of Ontario and Quebec (draft); and the National Boreal Standard; and
3. The Sustainable Forestry Initiative Inc.'s, Sustainable Forestry Initiative (SFI).

Many companies, as a first step in forest certification, have registered their environmental management systems to the International Organization for Standardization Environmental Management System (ISO) 14001.

The MNR ensures the sustainable forest management of Crown forests through a rigorous policy and regulatory framework. Forest companies operating in Ontario are required to comply with long-term, ecosystem-based forest management planning. Extension of a SFL is dependent upon satisfactory results of a mandatory Independent Forest Audit. Therefore, forest management companies in Ontario are well positioned to meet any forest certification/registration system standard. Figure 9a and Table 9a show forest management units that have been certified in Ontario as of April 2010.

Summary of Forest Certification - 2009/10

- The Dryden forest was certified to the SFI standard for the first time;
- All previously registered / certified forest management units continued efforts to demonstrate ongoing conformance to their selected certification systems during the fiscal year. The Big Pic, Whiskey Jack and White River Forests allowed their certification to lapse due to changes in forest management responsibilities; and
- Table 11a and Figure 11a highlight the SFLs certified in Ontario as of April 1, 2010.

Table 11a - Sustainable Forest Licences Certified and Not Certified in Ontario as of April 1, 2010

Management Unit	Sustainable Forest Licence holder	Certification standard (Registration date)
Algoma Forest	Clergue Forest Management Inc.	FSC (Jun 2005)
Algonquin Park Forest	Algonquin Forestry Authority	CSA (Feb 2008)
Bancroft-Minden Forest	Bancroft-Minden Forest Company Inc.	Not certified
Big Pic Forest	Marathon Pulp Inc.	Not certified
Black River Forest	Great West Timber Limited	SFI (Jul 2007)
Black Sturgeon Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2010)
Caribou Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2010)
Crossroute Forest	Abitibi-Consolidated Company of Canada	SFI (Jan 2010)
Dog River-Matawin Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2010)
Dryden Forest	**Dryden Forest Management Company Ltd.**	**SFI (Dec 2009)**
English River Forest	Bowater Canadian Forest Products Inc.	SFI (Jan 2010)
French-Severn Forest	Westwind Forest Stewardship Inc.	FSC (Feb 2007)
Gordon Cosens Forest	Spruce Falls Inc.	FSC (Apr 2008)
Hearst Forest	Hearst Forest Management Inc.	Not certified
Iroquois Falls Forest	Abitibi-Consolidated Company of Canada	SFI (Jan 2010)
Kenogami Forest	Terrace Bay Pulp Inc.	SFI (Mar 2007)
Kenora Forest	Weyerhaeuser Company Ltd.	CSA (Apr 2008)
Lac Seul Forest	McKenzie Forest Products Inc.	SFI (Jun 2007)
Lake Nipigon Forest	Lake Nipigon Forest Mangement Company	Not certified
Lakehead Forest	Greenmantle Forest Inc.	Not certified
Magpie Forest	Dubreuil Forest Products Limited	SFI (Jun 2007)

Table 11a continued

Management Unit	Sustainable Forest Licence holder	Certification standard (Registration date)
Martel Forest	Tembec Industries Inc.	FSC (Jan 2006)
Mazinaw-Lanark Forest	Mazinaw-Lanark Forest Inc.	Not certified
Nagagami Forest	Nagagami Forest Management Ltd.	Not certified
Nighthawk Forest	Abitibi-Consolidated Company of Canada	SFI (Jan 2010)
Nipissing Forest	Nipissing Forest Resource Management Inc.	FSC (Nov 2008)
Northshore Forest	Northshore Forest Inc.	FSC (Jun 2005)
Ogoki Forest	Long Lake Forest Products Inc.	SFI (Mar 2007)
Ottawa Valley Forest	Ottawa Valley Forest Inc.	Not certified
Pic River Ojibway Forest	Great West Timber Limited	SFI (Jul 2007)
Pineland Forest	Pineland Timber Company Ltd.	FSC (Aug 2005)
Red Lake Forest	Red Lake Forest Management Company Ltd.	Not certified
Romeo Malette Forest	Tembec Industries Inc.	FSC (Nov 2004)
Sapawe Forest	Atikokan Forest Products Ltd.	SFI (Jun 2007)
Smooth Rock Falls Forest	Tembec Industries Inc.	FSC (Mar 2005)
Spanish Forest	Domtar Inc.	FSC (Aug 2006)
Spruce River Forest	Abitibi-Consolidated Company of Canada	SFI (Feb 2009)
Sudbury Forest	The Vermillion Forest Management Company Ltd.	FSC (May 2006)
Timiskaming Forest	Timiskaming Forest Alliance Inc.	Not certified
Trout Lake Forest	Domtar Pulp and Paper Products Inc.	CSA (Dec 2006)
Wabigoon Forest	Domtar Pulp and Paper Products Inc.	CSA (Dec 2006) / FSC (Sep 2008)
Whiskey Jack Forest	Abitibi-Consolidated Company of Canada	Not certified
White River Forest	White River Forest Products Ltd.	Not certified

Note: Units in **bold** represent first time certification for 2009/10

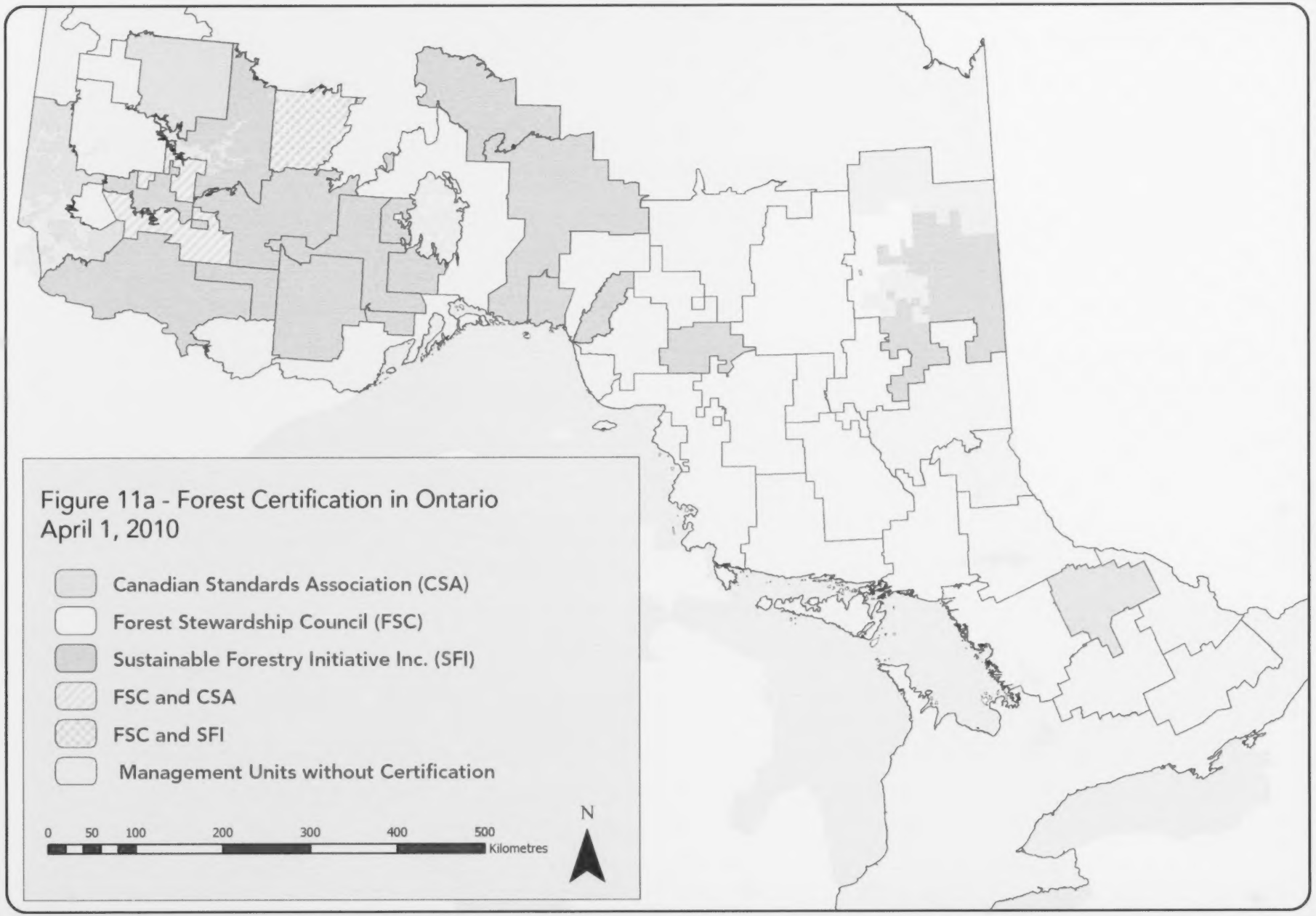


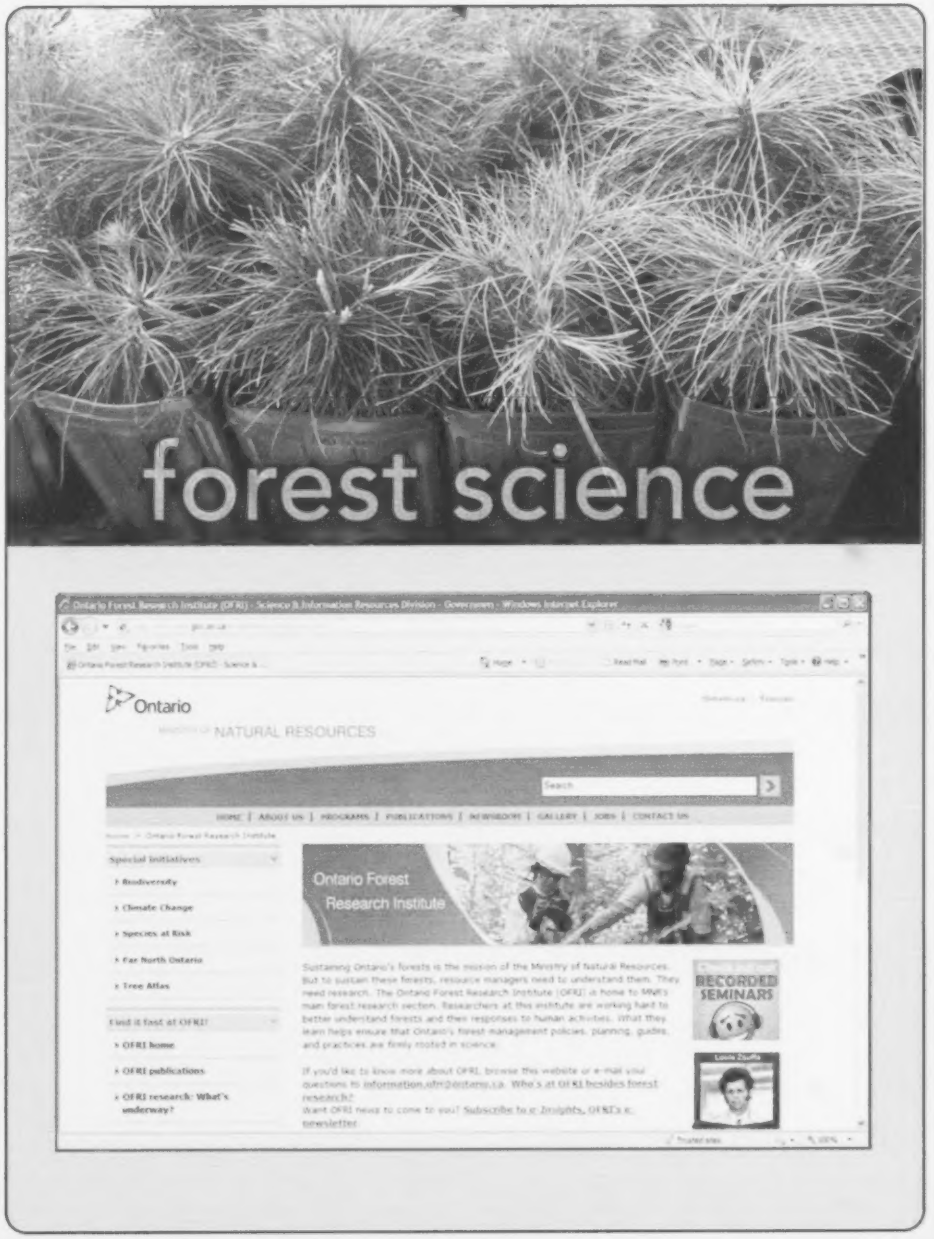
Figure 11a - Forest Certification in Ontario
April 1, 2010
Canadian Standards Association (CSA)
Forest Stewardship Council (FSC)
Sustainable Forestry Initiative Inc. (SFI)
FSC and CSA
FSC and SFI
Management Units without Certification
0 50 100 200 300 400 500
Kilometres
N

Overview

This section highlights significant advances and milestones attained during 2009/10 in specific policy development, technical development, and scientific programs related to forest management made by the MNR in cooperation with its partners, including:

- Climate change research;
- Creation and implementation of new policies, procedures, and forest management guides;
- Development and implementation of long-term monitoring programs and scientific studies;
- Educating professionals and the public;
- Development of new forest management methods, models, and tools; and
- Development of new and improved data and information sources.

Many research projects are in progress or deal with subjects indirectly related to forest management and are not reported in this document. More information about other research work undertaken by the MNR is available at: http://www.ontario.ca/forests.



Climate Change Mitigation and Adaptation

Climate change is a key priority for the Ontario government and for the MNR. Since 2004, MNR has had a broad internal strategy in place to inform and guide the ministry's work on climate change. In 2009/10, MNR continued to implement its strategic plan on climate change in an effort to mitigate the rate of global warming and the impacts associated with climate change. Climate Change publications include:

- Three climate change research notes (CCRN) and three climate change research reports (CCRR). The notes and reports are available at the MNR climate change website; and
- The carbon budget of Ontario's managed forests and harvested wood products for 2001-2100. This was a significant advance in understanding the health of Ontario forests (Chen et al. 2010 (March)).

The MNR partners with the federal government and the other provinces and territories on the Canadian Council of Forest Ministers. The Council has commissioned both mitigation and adaptation oriented reports. In 2009 *A Framework for Forest Management Offset Protocols* was published and was a major milestone which facilitated implementing forest carbon storage projects for the mitigation of climate change.

The Sustainable Forest Management Network, sponsored by Natural Resources Canada, draws together researchers from across the nation (including Ontario) to tackle critical science needs. In 2009, the Network released *Climate Change and Canada's Forests: From Impacts to Adaptation*. This report developed the case for forest adaptation programs in exploring such topics as: current and future impacts on Canada's forests, regional forest vulnerabilities, and impacts on the forest sector (management, operations, industry, communities, goods and services).

Prince Wind Farm

Forest Management Guide Developments

The Provincial Forest Technical Committee advises MNR on how to ensure that forest management guides that support the CFSA and the FMPM are kept current with the latest scientific knowledge and best practices. In accordance with EA conditions, the Provincial Forest Technical Committee met several times to address the following guides:

- Forest Management Guide for Great Lakes-St. Lawrence (GLSL) Forest Landscapes;
- Forest Management Guide for Boreal Forest Landscapes; and
- Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales.

The Forest Management Guide for Great Lakes-St. Lawrence Landscapes was finalized in March 2010 and is posted to the MNR website.

Preparation of the draft Forest Management Guide for Boreal Landscapes continued in 2009/10. Guidance in the document has been determined to be closely dependent on two key components of woodland caribou management:

- The caribou conservation plan was finalized in October 2009 and posted on the MNR website; and
- The eventual specifics of the caribou habitat regulation to be made under the Endangered Species Act, 2007. As progress is made notices will be published on the Environmental Registry website.

The Forest Management Guide to Conserve Biodiversity at the Stand and Site Scales (Stand and Site Guide) was finalized in March 2010 and the final text is posted on the MNR website.

MNR provided training on all 2011 and 2012 guides for forest management planning teams. All FMP teams were given training for the Stand and Site Guide. Additional GLSL Landscape Guide training was provided to specific 2011 FMP teams depending on the location within the AOU. The Forest Management Guide webpage gives an overview of the current guides and their status.

Wood Turtle Research

Spatial Ecology Program

In 2009/10, the MNR continued to provide support to forest management planning teams using spatial forest estate models (SFMM, BFOLDS, Patchworks, etc.). Additionally, various spatial habitat models were used in the Ontario Landscape Tool (OLT) for forest management planning under the new guides.

The models allow scenario analysis of forest management options to be completed in support of developing boreal landscape guide direction in forest management plans. Scenario analysis compared the current forest condition with conditions generated by simulated natural disturbance and various forest management guide options. Performance was based on the ability of the scenario to conserve the overall songbird community. A bioclimatic moose model was used to develop forest type targets for Moose Emphasis Areas (MEA's) in the Stand and Site Guide.

Ecological Land Classification Program

The Ecological Land Classification (ELC) program, formerly the Forest Ecosystem Classification Program, is mandated with the establishment of a comprehensive and consistent province-wide framework for ecosystem description, inventory and interpretation.

Work continued on the development of the ELC program including:

- Further development and release of Provincial Substrates Ver2.0 (soil description) materials including external technical review;
- Development and release of Boreal Treed Ecosites and Factsheets Ver3.0 and Development of Great Lakes Ecosite fact sheets Ver1.0;
- Completion and Release of Ecoregions of Ontario;
- Development of Ecodistricts of Ontario Ver2.0 factsheet;
- ELC ecosites implemented in enhanced Forest Resource Inventory in three SFLs;
- Completion of boreal analysis for treed vegetation types as part of Canadian National Vegetation Classification including two external/interprovincial technical reviews;
- Completion of analysis of Great Lakes/Southern treed vegetation types as part of Canadian National Vegetation Classification pending external review;

Female American Redstart on Nest

- Ongoing collaboration on development and implementation of Provincial Aerial Photo-Interpretation Manual in support of enhanced Forest Resource Inventory Ver2.0;
- Development of support graphics for ecosites and landscape toposequences in support of Provincial ELC and Photo-Interpretation Manual;
- Eight user/practitioner training workshops and field courses held province-wide including: southern Ontario, Far North Planning, University modeling collaborations, Ontario Parks, regional users/practitioners and Southern Ontario; and
- Begin revisions to Ontario Old Growth Forest Definitions based on new ELC ecosite categorization.

Growth and Yield

Measuring and predicting how trees and forests grow is the science of growth and yield. The Growth and Yield Program in Ontario is actively involved in a wide range of activities from the collection of field data and information, to the creation of new models, guidelines, and monitoring procedures. Results from this program are used in forest management planning and help guide the determination of the sustainable harvest area. The program also plays a key role in shaping the models and tools used to forecast the growth and development of Ontario's forests. The core element of this program is an extensive network of permanent sample plots on which the growth and status of individual trees is tracked through time. Data collected from these plots provides information on forest growth and yield as influenced by site, forest structure, silvicultural treatments and natural events.

In 2009/10, work continued on the Growth and Yield Program, with the following highlights:

- Review of the Growth and Yield Program to assess and document what has been accomplished (since 1994). The review concluded that progress on several key issues identified in the 1994 Master Plan had been made, but that a significant and growing misalignment of client needs and expectations existed relative to current program design and available resources (i.e., client needs and demands exceeded the program's current resources);
- Completed the re-measurement of 22 permanent sample plots through partnerships in southern Ontario with conservation authorities and county forests;
- Completed the re-measurement of an additional seven permanent sample plots within the AOU;

White Pine Blister Rust Research

- Through a partnership with the Forest Ecosystem Science Coop, re-measured 402 permanent growth plots; and
- Produced an updated model for the creation of yield curves for use in forest management planning known as MIST (Model and Inventory Support Tool).

The annual report of the MNR Science and Information Branch noted that poplar yield curves were derived on the Kenora and Whiskey Jack forests to support volume estimation and sustainable forest management modelling for these forest management units. Furthermore, MNR's Southern Science and Information section (SSI), the Ontario Forest Research Institute, and the Canadian Forestry Service worked on a field study looking into the effects of harvesting biomass from shade tolerant hardwood stands using a partial harvesting system. There are four study sites: Haliburton Forest, Nipissing Forest, Algoma Forest, and the Petawawa Research Forest.

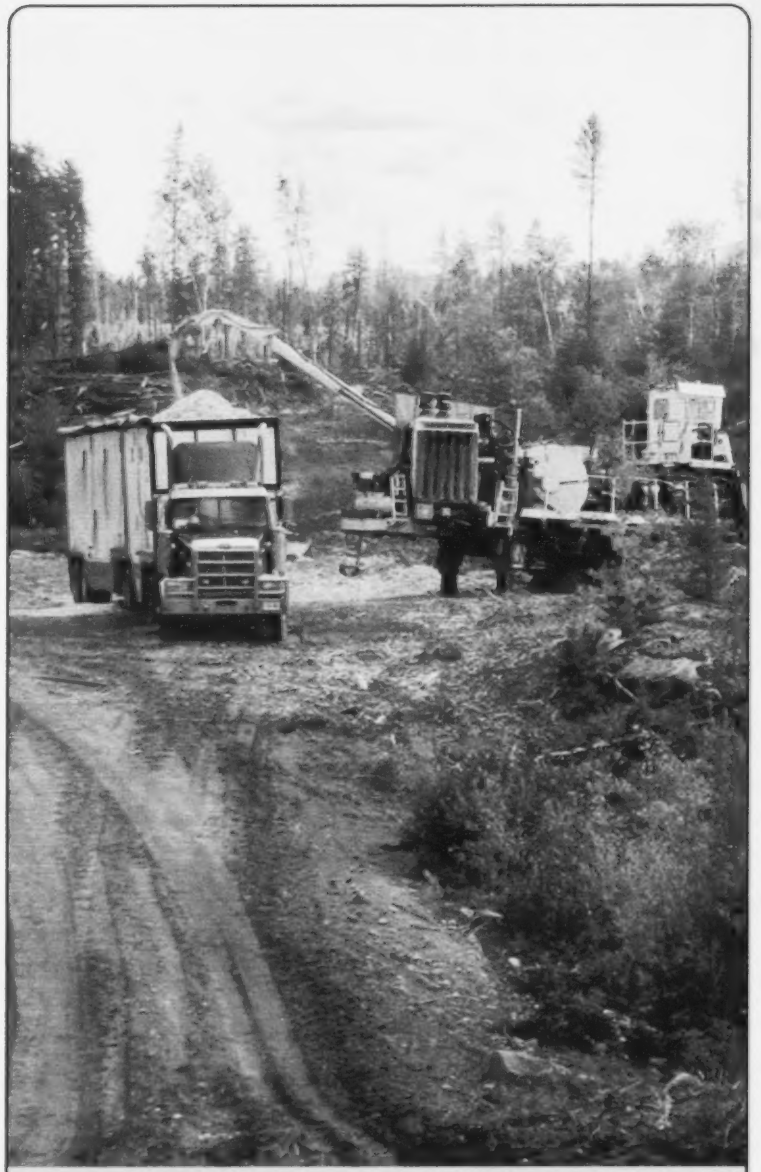
Full-tree Harvest and Full-tree Chipping Studies

The full-tree harvesting project, initiated in 1991, was designed to focus on ecosystem processes and the changes occurring in these processes in response to varying levels of biomass removals. MNR installed and monitored nine locations across a range of black spruce-dominated site type. The Canadian Forest Service installed a companion project of nine locations across a range of jack pine-dominated site types.

The project examines:

- The important processes involved in nutrient cycling over a range of boreal ecotypes;
- The recovery patterns of the above-mentioned processes after harvesting and compares these changes to post-wildfire patterns; and
- Site type sensitivity to nutrient removals.

This collaborative project represents one of the oldest, most comprehensive biomass removal experiments in Canada, and will provide empirical results of vital importance to sustainability analysis and policy development.



Chipping Wood

Field and laboratory work focused on the 15-year re-measurements for the remaining six experimentally-harvested sites. These measurements were designed to quantify changes in soil chemical composition (e.g., pH, carbon and macronutrient reserves, available nutrients), and biological (e.g., microbial biomass) properties resulting from the harvest treatments over the range of site types being examined. In addition, seedling growth (e.g., total height and increment, breast height diameter) and nutrition (e.g., foliar chemistry, plant uptake) measurements were taken to examine trends in individual tree and stand-level performance.

Currently, there are three graduate students working on different aspects of the treatment responses:

- Role of coarse woody debris in carbon and nutrient retention;
- Understory plant diversity; and
- Stand-level productivity response.

A closely related new project, examining potential implications of short rotation biomass harvesting in intensively-managed black spruce plantations, was recently established near Nipigon, Ontario. This project was designed to examine the potential draw down of soil carbon and nutrients resulting from short rotation (40 years) biomass harvests, and to model the long-term impacts on productivity in future rotations under an intensive forest management regime.

Beyond the extraction/utilization of traditional forest products, the project was designed to provide a more thorough examination of the impacts of higher biomass utilization scenarios that include three levels of slash retention, and two levels of logging debris retention. A key deliverable is to establish threshold levels of coarse and fine woody biomass removals from mid-rotation black spruce plantations.

Wildlife Population Monitoring

Provincial wildlife population monitoring is undertaken to determine if healthy populations of forest wildlife continue to be found across the AOU and to contribute to an understanding of how forest management affects wildlife populations.

Bird Banding

MNR took the following steps to continue to implement the wildlife monitoring program:

- Continued its Boreal Science Co-operative (BSC) partnership that included migration monitoring, breeding bird survey, nocturnal owl survey and woodcock survey;
- Continued its partnership with the University of Guelph for Algonquin Park small mammal monitoring;
- Proceeded with Multi-Species Inventory and Monitoring (MSIM) site marking for implementation in ecoregion 3W and equipment purchase for the 2010 field season;
- Conducted ongoing moose aerial inventory surveys;
- Continued and coordinated the black bear population index network surveys; and
- Carried out MSIM winter tracking and camera evaluation in northeast region.

In closely related work, moose pregnancy rates in the MNR Northeast Region were investigated through fecal material collection and assay of progesterone. The Information Management and Spatial Analysis team developed an approach for mapping wood turtle habitat and the Northeast Region Planning Unit is testing this approach.

A major partner's project is being managed by the Fish and Wildlife Science Unit of the Forest Ecosystem Science Co-operative Inc. Key uncertainties facing resource managers and the forest industry in attempting to meet the requirements of Ontario Caribou Conservation Plan are:

- Which ecological factors are most vital to woodland caribou; and
- How these ecological factors are influenced by the mix of habitat types that occur across large boreal landscapes.

This project is designed to measure the impact of key ecological variables (e.g., food availability, distance from roads, energetic cost, predator density, competitor density, and predation risk) on movement patterns, survival and offspring recruitment of over 100 woodland caribou equipped with GPS radio-collars. The project area includes three large landscapes that have been exposed to varying degrees of forest management activities (Pickle Lake, Auden, and Cochrane). Demographic rates will be related back to the mix of habitats experienced by each of the animals over the course of the year. This information will be used to develop computer models to assess population viability in relation to alternative forest and wildlife management practices. In 2009/10, 60 caribou and 25 wolves were collared to successfully initiate the project on the ground.

Moose Survey

The wildlife population monitoring program made significant progress with the publication of a trend status report for Ontario's forest birds in partnership with the Boreal Science Co-operative, the Canadian Forest Service, and the Canadian Wildlife Service.

MNR continued to investigate monitoring methods that included:

- Multi-species inventory monitoring through winter tracking and camera evaluation in Northeast region; and
- Aerial survey methods development determining optimal survey design for detection of rare terrestrial mammals (caribou and wolverine) - surveys conducted in lowland and upland boreal shield forest communities

Lastly, a draft *Wildlife Population Monitoring Program Plan: 2010-2014* was produced for internal MNR review.

Educating Professionals and the Public

In 2009/10, extensive professional and technical training was delivered: 239 people attended compliance training in six sessions dispersed across the province; 1,707 people attended 16 sessions covering 11 topic areas in forest management planning; 358 attended in six forest management plan guides sessions; and a total of 342 participants distributed among the following 11 sessions: emerging forestry issues, tree marking, white pine blister rust, vegetation management, dogwood leaf blight, root rot, and climate change.

MNR's Policy Division has created an e-learning website to give clients the knowledge, tools and support they need when developing their forest management plan. Learning Compass gives clients access to face-to-face training opportunities, webinars and a variety of other e-learning resources.

MNR also participated directly in forester education by creating forester intern positions and by participating on forestry program advisory committees at Sault College and Lakehead University.

A contribution through a memorandum of understanding with the Ontario Forestry Association (OFA) supported the production of Focus on Forests teacher's kits and forestry fact sheets, the OFA website, and events such as Envirothon.

Arctic Cat
Arctic Cat
Arctic Cat

Public education was supported by MNR booths at both the International Plowing Match at Temiskaming in September 2009 (Forest Management in Ontario), and the Toronto Sportsmen's Show in March 2010 (Don't Move Wood invasive pests display). In addition the Forest Health Conditions in Ontario, 2008 report was released.

Information and Analysis

Steady progress was made with the Natural Resources Values Information System (NRVIS) with five sub-releases of upgrades bringing small application changes, bug fixes, and new data classes. A significant improvement in operational status was achieved with nightly posting of NRVIS edits to the Land Information Ontario warehouse allowing next day delivery of data to clients. In addition the Aquatic Resource Area layer underwent a full data class re-analysis. This data class provides the thermal information for lakes, rivers and streams used in forest management planning values protection such as water quality buffers from forest harvesting operations.

Modifications to the Forest Information Portal (FMP technical data submission) were made to accommodate changes to the new 2009 Forest Information Manual and the new Forest Information Manual 2009 Technical Specifications (Annual Work Schedules, Annual Reports and Forest Management Planning, Base and Values and Forest Resource Inventory).

The FOIP application was enhanced to meet the streamlining and revision of the forest operations inspection process. The project was to ensure continued reporting to the public on the compliance status of Ontario's forest operations.

Non-Timber Forest Products

Non-timber forest resources (NTFR) include many species of forest plants harvested for various reasons, including medicinal plants (such as Canada yew), wild foods (mushrooms, blueberries, maple syrup), floral greens (ferns, boughs), fragrances (balsam fir), fibres (cedar bark, spruce roots), plant dyes (walnut), garden plants (wild columbine), seeds (from cones) and arts and crafts materials.

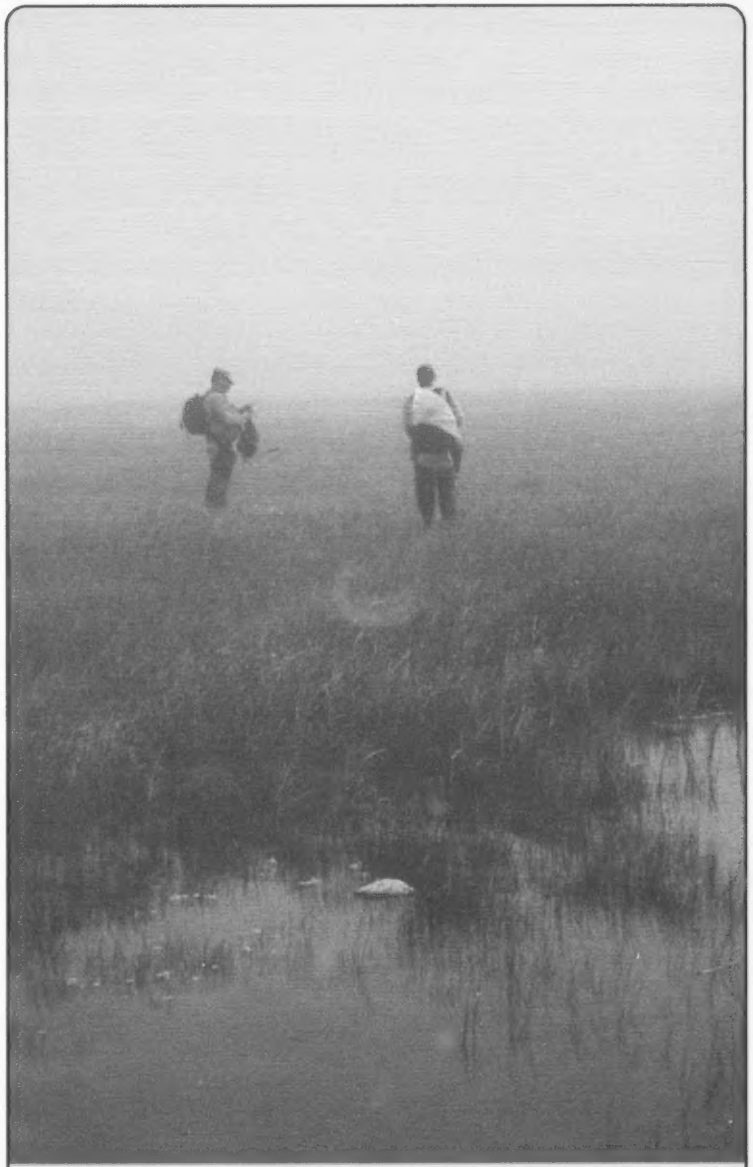
GIS Layers - Silvicultural Data

People gather NTFR for a variety of reasons, including for subsistence living, or for cultural, spiritual, commercial, recreational or educational purposes. The harvesting of NTFP is usually compatible with commercial timber harvesting operations, provided that both operations are properly planned, co-ordinated and implemented. Some of the best known NTFP in Ontario are Christmas trees and maple syrup.

Ontario is the third largest maple producing province with production of 1,310 MT, valued at $11.2 million and concentrated in the southwest region areas, mainly in Waterloo County. Lanark County in eastern Ontario is the second major area of production in the province (Agriculture and Agri-Food Canada).

Canada yew (*Taxus canadensis*) (also called eastern yew or ground hemlock) is a native woody evergreen shrub that grows in the understory of the Great Lakes/St. Lawrence and boreal forest of northern Ontario. The foliage, bark, and roots of this shrub are a source of the valuable anticancer chemical paclitaxel (the drug form is called Taxol) and two other taxanes of pharmaceutical interest (10-DAB, DHB).

Apart from maple syrup, Canada yew is thought to be the most economically significant NTFR harvested in Ontario's forests. This is difficult to validate, however, since most NTFR activity in Ontario is not monitored. Currently, inventory information about Canada yew is limited; however, Canada yew is thought to be a good indicator of NTFR economic activity in Ontario. Approximately 285,000 kilograms was harvested in 2009/10 in the Montreal River and Sault Ste. Marie areas.



Far North Researchers